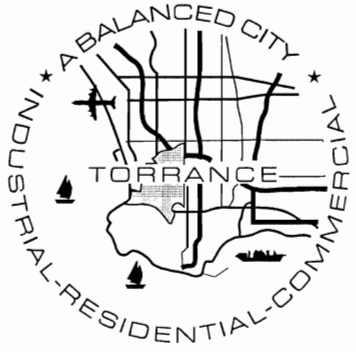
PROJECT MANUAL FOR RENOVATION OF THE PERSONNEL BUILDING

B 2012-44



October 15, 2012

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PART A

NOTICE INVITING BIDS

CITY OF TORRANCE
CALIFORNIA

NOTICE INVITING BIDS

Notice is hereby given that sealed proposals for performing the following described work will be received at the office of the City Clerk of the City of Torrance, California, until **2:00 p.m. on Thursday, November 29, 2012** after which time they will be publicly opened and read at 2:15 p.m. in the Council Chambers of said City:

Bid for Renovation of the Personnel Building
B2012-44

Plans, Bid Proposal (for reference only) and Specifications are available for viewing and printing from the City's website at http://www.torranceca.gov/25079.htm.

There will be a mandatory pre-bid conference held on Thursday, November 8, 2012 at 10:00 a.m. commencing at Personnel Building, 3231 Torrance Boulevard, Torrance, CA 90503. The City of Torrance will consider the bidder as non-responsive if the bidder does not attend the mandatory pre-bid conference. **Addenda will be issued only by email and only to those attended the mandatory pre-bid conference.** All addenda must be acknowledged. Failure to acknowledge addenda on the bid forms provided may render the proposal non-responsive and cause it to be rejected.

An official bid proposal packet, which includes: full-size 24" x 36" set of Plans, bid proposal forms, and a bound Specifications booklet may be obtained at the Office of the City Clerk (310) 618-2870, upon payment of $50 if picked up at City Hall, or payment of $60 if requested by mail. Both amounts include tax. Neither amount is refundable. A prospective firm must provide to the City Clerk's office, the firm's name, address, telephone and fax number, a contact person and a valid email address.

If requesting any item(s) by mail, please send check to the following:

CITY OF TORRANCE
OFFICE OF THE CITY CLERK
3031 TORRANCE BLVD
TORRANCE, CA 90503-2970
ATTN: B2012-44

The project estimate is between $ 500,000 and $ 525,000. The work shall be completed within two hundred (200) calendar days of receipt of the Notice to Proceed (NTP).The project will be completed in two phases. Onsite work will be no more than ninety (90) calendar days for each phase of work, with up to a maximum two weeks in between phases for relocation of staff. Bids are required for the entire work described herein.

The City has determined the bidder must have a valid "B" General Building Contractor License. Bidder must have 5 years experience in projects of similar size and scope.

Per Division 2, Chapter 2 of the Torrance Municipal Code, the Torrance City Council may reject any and all bids, waive any informality or irregularity in such bids, and determine the lowest responsible bidder.

No Facsimile Bids shall be accepted by the City.

Project is not subject to prevailing wage.

By order of the City Council of the City of Torrance, California.

For further information, please contact Diane Megerdichian, Business Manager General Services Department at 310-781-7151 or dmegerdichian@torranceca.gov. If emailing questions, please put project title in the subject line.

PART B

INSTRUCTIONS TO BIDDERS

CITY OF TORRANCE
CALIFORNIA

INSTRUCTIONS TO BIDDERS

A. QUALIFICATION OF BIDDERS

1. Competency of Bidders

The Bidder shall be thoroughly competent and capable of satisfactorily performing the Work covered by the Bid. As specified in the Bid Documents, the Bidder shall furnish statements of previous experience on similar work. When requested, the Bidder shall also furnish a plan of procedure proposed; organization, machinery, plant and other equipment available for the Work; evidence of financial condition and resources; and any other documentation as may be required by the City to determine if the Bidder is responsible.

2. Contractor's License

At the time of submitting the Bid, the Bidder shall be licensed as a contractor in accordance with the provisions of Chapter 9, Division 3, of the California Business and Professions Code. The required prime contractor license class for the Work is shown in the project Notice Inviting Bids. However, the City reserves the right to award the Contract to a contractor with another class if the City determines that the license is proper for the work.

B. BIDDER RESPONSIBILITY

A responsible Bidder is a Bidder who has demonstrated the attribute of trustworthiness, as well as ability, fitness, capacity and experience to satisfactorily perform the work.

Bidders are notified that, in accordance with Division 2, Chapter 2 of the Torrance Municipal Code, the City Council may determine whether the Bidder is responsible based on a review of the Bidder's performance on other contracts.

If, based on the provision and criteria in Division 2, Chapter 2 of the Torrance Municipal Code, the General Services Director proposes not to recommend the award of contract to the apparent low bidder, the Director shall notify the Bidder in writing of its intention to recommend to the City Council that the Council award the contract to the next lowest responsible bidder. If the Bidder presents evidence in rebuttal to the recommendation, the Director shall evaluate the merits of such evidence, and based on that evaluation, make a recommendation to the City Council.

C. ADDENDA TO THE CONTRACT DOCUMENTS

The City reserves the right to revise or amend these specifications prior to the date set for opening bids. Revisions and amendments, if any, will be announced by an addendum to this bid. If the revisions require additional time to enable Bidders to respond, the City may postpone the opening date accordingly. In such case, the addendum will include an announcement of the new opening date.

All addenda must be attached to the bid. Failure to attach any addendum may render the bid non-responsive and cause it to be rejected.

D. PREPARATION OF THE BID

1. Examination of Site, Plans and Specifications

   Bidders shall examine the site of the work and acquaint themselves with all conditions affecting the work. By submitting a bid, the bidder shall be held to have personally examined the site and the drawings, to have carefully read the specifications, and to have satisfied itself as to its ability to meet all the difficulties attending the execution of the proposed contract before the delivery of this proposal, and agrees that if awarded the contract, will make no claim against the City based on ignorance or misunderstanding of the plans, specifications, site conditions and/or contract provisions.

   The Contractor shall have included in the contract price a sufficient sum to cover all items, including labor, materials, tools, equipment and incidentals, that are implied or required for the complete improvements as contemplated by the drawings, specifications, and other contract documents.

2. Bid Instructions and Submissions

   The Bid shall be submitted on the Bid Proposal forms included in the Specifications. All Bid Documents must be completed, executed and submitted with Bid by Bidder. Required seven (7) Bid Proposal Documents:

   1. Bidder's Proposal
   2. Addenda Acknowledgment
   3. Contractor's Affidavit
   4. Bid Bond (10% of Bid)
   5. List of Subcontractors
   6. References (2 pages)
   7. Bidder's Information (2 pages)

   All prices submitted will be considered as including any and all sales or use taxes. In case of a discrepancy between a unit bid price and total bid, the unit price shall prevail.

E. BID FORM/BOND

The Bid must be accompanied by cash, a certified or cashier's check, or a surety bond (bid bond) payable to the City of Torrance. Bids must be submitted on the proposal forms furnished by the City Clerk's office. The Bid Guaranty shall be in an amount equivalent to at least 10% of the Total Contract Bid Price.

Within ten (l0) days after the award of the contract, the City Clerk will return the proposal guarantees accompanying those proposals, which are not to be considered in making the award. All other proposal guarantees will be held until the contract has been finally executed, after which they will be returned to the respective bidders whose proposals they accompany.

F. AFFIDAVIT

An affidavit form is enclosed. It must be completed signifying that the bid is genuine and not collusive or made in the interest or on behalf of any person not named in the bid, that the bid has not directly or indirectly induced or solicited any other Bidder to put in a sham bid or any other person, firm, or corporation to refrain from bidding, and that the Bidder has not in any manner sought by collusion to secure for itself an advantage over any other Bidder. Any bid submitted without an affidavit or in violation of this requirement will be rejected.

G. NONRESPONSIVE BIDS AND BID REJECTION

1. A Bid in which any one (1) of the required seven (7) Bid proposal documents are not completed, executed and submitted may be considered non-responsive and be rejected.

2. A Bid in which the Contract Unit Prices are unbalanced, which is incomplete or which shows alteration of form or irregularities of any kind, or which contains any additions or conditional or alternate Bids that are not called for, may be considered non-responsive and be rejected.

H. AWARD OF CONTRACT

In accordance with Division 2, Chapter 2 of the Torrance Municipal Code, the City Council reserves the right to reject any and all bids received, to take all bids under advisement for a period not-to-exceed sixty (60) days after date of opening thereof, to waive any informality or irregularity in the Bid, and to be the sole judge of the merits of material included in the respective bids received. This bid does not commit the City to award a contract or to pay any cost incurred in the preparation of a bid. All responses to this bid become the property of the City of Torrance.

I. EXECUTION OF CONTRACT

After the Contract is awarded, the awarded bidder shall execute the following six (6) documents:

1. Performance Bond (100% of Bid)
2. Labor and Material Bond (100% of Bid)
3. Contract - Public Works Agreement
4. Verification of Insurance Coverage (Certificates and Endorsements)
5. Workers' Compensation Insurance Certificate
6. Business License Application Form

J. PERMITS, LICENSES AND PUBLIC WORKS AGREEMENT

The Contractor shall procure and execute all permits, licenses, pay all charges and fees, and give all notices necessary and incidental to completion of Work. The Contractor shall execute a Public Works Agreement. No fee is charged for a permits issued by the City of Torrance Building and Safety Department for a public works project. The Contractor shall obtain a City of Torrance Business License. To obtain a Torrance Business License please call 310-618-5923.

K. INSURANCE

The Contractor shall maintain Automobile Liability, General Liability and Workers' Compensation Insurance as specified in the Public Works Agreement included in the Project Specifications.

L. SUBCONTRACTS

Each Bidder shall comply with the Chapter of the Public Contract Code including sections 4100 through 4113. The Contractor shall perform, with its own organization, Contract work amounting to at least 50 percent of the Contract price. When a portion of an item is subcontracted, the value of the work subcontracted will be based on the estimated percentage of the Contract Unit Price, determined from information submitted by the Contractor, subject to approval by the City Manager.

M TRAFFIC CONTROL PLAN

Not applicable

N. PRE-BID INQUIRIES

Bidders with pre-bid inquiries must submit questions in writing to the General Services Department. Any and all questions must be emailed to Diane Megerdichian, Business Manager at DMegerdichian@torranceca.gov. Please list **"Renovation of Personnel Building (question-topic)"** in the subject line of the email. For questions of a general nature, bidders may contact Diane Megerdichian directly at 310-781-7151

O. EXECUTION OF CONTRACT

1. The contract shall be signed by the successful bidder and returned, together with the contract bonds and evidence of required insurance coverage, **within ten (10) working days**, not including Sundays, after the bidder has received notice that the contract has been awarded. Failure to execute the contract as specified above shall be just cause for annulment of the award and forfeiture of the proposal guarantee. The Contract shall not be considered binding upon the CITY until executed by the authorized CITY officials.

2. Bond amounts shall be as provided in Section 2-4 of the Standard Specifications for Public Works Construction. The Performance Bond shall be required to remain in effect for one (1) year following the date specified in the City's Notice of Completion, or, if no Notice of Completion is recorded for one (1) year following the date of final acceptance by the City Manager.

P. RESPONSIBILITY OF CITY.

The City of Torrance shall not be held responsible for the care or protection of any material or parts of the work prior to final acceptance, except as expressly provided in these specifications.

Q. CONSTRUCTION SCHEDULE AND PRECONSTRUCTION CONFERENCE.

The office staff of the City is currently operating on a 9/80 work week; therefore, City Hall is closed every other Friday.

In accordance with the herein Special Provisions, after notification of award and prior to start of any work, **the Contractor shall submit to the City Manager for approval its proposed Construction Schedule within ten (10) working days from the date of Notice of Proceed.** At least two (2) days, exclusive of Saturdays, Sundays and holidays, prior to commencement of work, the Contractor shall attend a pre-construction conference.

The Contractor will provide all product and equipment submittals to the City of Torrance or designated consultant within ten (10) working days from the date of Notice to Proceed. The Contractor shall immediately order materials requiring a delivery delay upon receipt of a written notice from the City that the City Council has approved an Award of Contract. Contractor shall provide written proof(s) of timely material order(s) and shall include any delivery delays in the Construction Schedule.

R. PROGRESS OF THE WORK AND TIME FOR COMPLETION

The Contractor shall begin work after the mailing, from the City Manager to the Contractor, by first class mail, postage prepaid, of a Notice to Proceed. **The Contractor shall diligently prosecute the same to completion within two hundred (200) calendar days of the start date specified in said Notice.** The two hundred calendar day schedule includes, completion of contractual paper work, equipment/ material submittal review, the lead time for materials and equipment, and on site work. The work will be in two phases. **Onsite work will be no more than ninety (90) calendar days for <u>each</u> phase of work,** with up to a maximum two weeks in between phases for relocation of staff.

During periods when weather or other conditions are unfavorable for construction, the Contractor shall pursue only such portions of the work as shall not be damaged thereby. No portions of the work whose acceptable quality or efficiency will be affected by any unfavorable conditions shall be constructed while those conditions exist. It is expressly understood and agreed by and between the Contractor and the City that the Contract time for completion of the work described herein is a reasonable time taking into consideration the average climatic and economic conditions and other factors prevailing in the locality of the work.

S. LIQUIDATED DAMAGES

The Contractor agrees that failure to complete work within the time allowed will result in damages being sustained by the City. Contractor and City agree that failure to complete the project will result in inconvenience to the citizens of Torrance and the City of Torrance and their customers using the affected areas. Such delay will also result in the necessity of several inspections each day to ensure that the project is properly progressing. The parties also agree that failure to complete the project on time will prevent the City from having the use of the facility. Therefore, the parties agree such damages among others are, and will continue to be, impracticable and extremely difficult to determine, but that Five Hundred ($500) a calendar day is the minimum value of such costs to the City and is a reasonable amount that the Contractor agrees to reimburse the City for each calendar day of delay in finishing the work in excess of the time specified for completion, plus any authorized time extensions.

Execution of the contract under these specifications shall constitute agreement by the Contractor and the City that Five Hundred Dollars ($500) per calendar day is the minimum value of the costs and actual damage caused by failure of the Contractor to complete the work within the allotted time, that such sum is liquidated damages and shall not be construed as a penalty, and that such sum may be deducted from payments due the Contractor if such delay occurs. Said amount may be reduced by the City if work is sufficiently completed within the allotted time so that the damages are minimized.

The Contractor will not be assessed liquidated damages for any delay in completion of the work when such delay was caused by the failure of the City or the owner of a utility to provide for removal or relocation of the existing utility facilities; provided, however, that the Contractor shall have given the City and the owner of a utility timely notice of the interference. "Timely notice" shall be defined as a verbal notice (to be followed up in writing) no later than one (1) hour after initial discovery of the interference unless the City Representative is present, in which case notice shall be given immediately in writing to the City Manager.

T. GENERAL PREVAILING WAGE RATE- Not applicable

U. PRELIMINARY NOTICES

Preliminary Notices should be mailed to the following address.
Diane Megerdichian
General Services Department
3350 Civic Center Drive
Torrance, CA 90503

PART C

SPECIAL PROVISIONS

SECTION A. GENERAL

The Project Specifications for all work on this project are the specifications contained in the "**Project Manual for Renovation of the Personnel Building**", prepared by Withee Malcolm Architects and the City of Torrance.

These Specifications are intended to govern all aspects of the appurtenant construction including, but not limited to, materials, methods and details, except as modified herein or as inconsistent with the provisions hereof.

DEFINITIONS

Whenever the following terms are used, they shall be understood to mean and refer to the following:

Agency or City - City of Torrance.

Board- The City Council of the City of Torrance herein referred to as City Council.

City Manager - The City Manager of the City of Torrance, acting either directly or through properly authorized agents, such agents acting within the scope of the particular duties entrusted to them.

Consulting Architect – Jeff Lemler
Withee Malcolm Architects
2251 W. 190th Street
Torrance, CA 90504
424-266-6934
310-217-0425 Fax
jlemler@witheemalcolm.com

Laboratory - The designated laboratory authorized by the City of Torrance to test materials and work involved in the contract.

SECTION B. REFERENCE TO STANDARDS OR PUBLICATIONS

Any reference made in the Contract Documents to any specification, standard, or publication of any organization shall, in the absence of a specific designation to the contrary, be understood to refer to the latest edition of the specification, standard, or publication in effect as of the date of advertising the work, except to the extent that said standard or publication may be in conflict with applicable laws, ordinances, or governing codes. Contractors should be aware of all new code requirements (such as Cal-Green) when dealing with HVAC and other general building work. No requirements of these specifications or the drawings shall be waived because of any provisions of, or omission from, said standards or publications.

SECTION C. DESCRIPTION OF THE WORK

1. Scope of the Work. The work to be done consists of furnishing all labor, materials, tools, equipment and incidentals complete the Renovation of the Personnel Building as shown in the plans and specifications prepared by Withee Malcolm Architects for the City of Torrance.

SECTION D. GENERAL PROCEDURES

1. Specifications and Drawings Complementary. The Specifications and Drawings are complementary, and what is called for in one shall be as binding as if called for in both.

2. Order of Precedence of Contract Documents. In resolving conflicts resulting from conflicts, errors, or discrepancies in any of the Contract Documents, the order of precedence shall be as follows:

   a. Change Orders (Including Plans and Specifications attached thereto).
   b. Public Works Agreement
   c. Addenda
   d. Special Provisions
   e. Plans
   f. Standard Plans
   g. Instructions to Bidders
   h. Standard Specifications

   Within the Specifications the order of precedence is as follows:

   a. Addenda/Change Orders
   b. Permits from other agencies/supplemental agreements
   c. Special Provisions
   d. Instructions to Bidders
   e. Referenced Standard Drawings
   f. Referenced Standard Specifications

   With reference to the Drawings the order of precedence is as follows:
   a. Change Orders drawings govern over Addenda and Contract Drawings
   b. Addenda drawings govern over Contract drawings
   c. Contract drawings govern over shop drawings and standard drawings
   d. Detail drawings govern over general drawings
   e. Figures govern over scaled dimensions

   If the Contractor, in the course of the Work, becomes aware of any claimed errors or omissions in the Contract Documents or in the CITY's fieldwork, the Contractor shall immediately inform the CITY. The CITY shall promptly review the matter, and if the CITY finds an error or omission has been made the CITY shall determine the corrective actions and advise the Contractor accordingly. If the corrective work associated with an error or omission increases or decreases the amount of work called for in the Contract, the CITY shall issue an appropriate Change Order in accordance with 3-3. After discovery of an error or omission by the Contractor, any related work performed by the Contractor shall be done at the Contractor's risk unless authorized by the CITY.

3. Discrepancies in the Contract Documents. Any discrepancies, conflicts, errors or omissions found in the Contract Documents shall be promptly reported in writing to the City Manager, who will issue a correction in writing. The Contractor shall not take advantage of any such discrepancies, conflicts, errors or omissions, but shall comply with any corrective measures regarding the same prescribed by the City Manager, and no additional payment or time shall be allowed therefor.

   If discrepancies are discovered between the drawings and the specifications, and no specific interpretation is issued prior to bidding, the decision regarding this interpretation shall rest with the City Manager. The Contractor shall be compelled to act on the City Manager's decision as directed. In the event the installation is not in compliance with the direction of the City Manager, the installation shall be corrected by and at the expense of the Contractor at no additional cost to the City.

   See Section C of these Special Provisions for "Claims".

4. Errors and Omissions. If the Contractor, in the course of the work, becomes aware of any claimed errors or omissions in the contract documents or in the City's field work, he shall immediately inform the City Manager. The City Manager shall promptly review the matter, and if the City Manager finds an error or omission has been made the City Manager shall determine the corrective actions and advise the Contractor accordingly. If the corrective work associated with an error or omission increases or decreases the amount of work called for in the Contract, the City shall issue an appropriate Change Order. After discovery of an error or omission by the Contractor, any related work performed by the Contractor shall be done at its risk unless authorized by the City Manager.

5. Changed Conditions. The plans for the work show conditions as they are believed by the City Manager to exist, but it is not intended or to be inferred that the conditions as shown thereon constitute a representation by the City that such conditions are actually existent, nor shall the City be liable for any loss sustained by the Contractor as a result of any variance of the conditions as shown on the plans and the actual conditions revealed during the progress of the work or otherwise. The word "conditions" as used in this paragraph includes, but is not limited to, site conditions, both surface and subsurface.

   The Contractor shall examine the site, compare it with the drawings and specifications and shall satisfy itself as to the conditions under which the work is to be performed. The Contractor shall ascertain and check the location of all existing structures, utilities and equipment, which may affect its work. The Contractor shall be responsible to re-examine the site, as necessary, for performance of change orders or other proposed changes, which may affect its work. No allowance shall subsequently be made on the Contractor's behalf for any extra expense or loss of time, which is incurred due to failure or negligence on its part to make such examination.

6. As-built Drawings. The Contractor shall maintain a control set of Plans and Specifications on the Work site at all times. All final locations determined in the field, and any deviations from the Plans and Specifications, shall be marked in red on this control set to show as-built conditions. Upon completion of the Work, the Contractor shall submit the control set to the Engineer for approval. Final payment will not be made until this requirement is met.

7. Construction Staking. The Contractor is responsible for all construction staking and shall be responsible for the cost of any restaking required due to disturbance caused by its operations, failure to protect the work site from vandalism or other causes of loss.

8. Notice to Proceed. Notwithstanding any other provisions of the Contract, the Contractor shall not be obligated to perform any work and the City shall not be obligated to accept or pay for any work performed by the Contractor prior to delivery of a Notice to Proceed. The City's knowledge of work being performed prior to delivery of the Notice to Proceed shall not obligate the City to accept or pay for such work. The Contractor shall provide all required contract bonds and evidences of insurance prior to commencing work at the site.

9. Delay in Obtaining Materials. No extension of time will be granted for a delay caused by the inability to obtain materials unless the Contractor either obtains advance written approval from the City Manager or obtains from the supplier and furnishes to the City Manager documentary proof that such materials could not be obtained due to war, government regulations, labor disputes, strikes, fires, floods, adverse weather necessitating the cessation of work, or other similar action of the elements. The Contractor is required to order materials in a timely manner as specified in the "Instruction to Bidders".

10. Inspection and Testing. The Work is subject to inspection and approval by the CITY. The Contractor shall notify the CITY a minimum of 48 hours in advance of the required inspection.

    The CITY will make, or have made, such inspections and tests, as he deems necessary to see that the Work is in conformance with the Contract Documents. In the event such inspections or tests reveal noncompliance with the Contract Documents, the Contractor shall bear the cost of such corrective measures as deemed necessary by the CITY, as well as the cost of subsequent re-inspection and re-testing.

    Work done in the absence of inspection by the CITY may be required to be removed and replaced under the inspection of the CITY, and the entire cost of removal and replacement, including the cost of all materials which may be furnished by the CITY and used in the work thus removed, shall be borne by the Contractor, regardless of whether the work removed is found to be defective or not. Work covered without the approval of the CITY shall, if so directed, be uncovered to the extent required by the CITY, and the Contractor shall similarly bear the entire cost of performing all the work and furnishing all the materials necessary for the removal of the covering and its subsequent replacement, including all costs for additional inspection.

    The CITY and any authorized representatives shall at all times have access to the Work during its construction at shops and yards as well as the Work site. The Contractor shall provide every reasonable facility for ascertaining that the materials and workmanship are in accordance with the Contract Documents.

    Inspection of the Work shall not relieve the Contractor of the obligation to fulfill all conditions of the Contract.

11. Project Schedule

12.1 The Contractor shall submit a Construction Schedule in accordance with the project manual to the City Manager prior to beginning construction. No work may be started until the Schedule has been approved in writing. The work shall be scheduled to assure that construction will be completed within the specified time. The Contractor shall be responsible for coordination of all phases of the operation so that the time schedule can be met.

12.2 If the Contractor desires to make a major change in its method or operations after commencing construction or if their Schedule fails to reflect the actual progress, the Contractor shall submit to the City Manager a revised Construction Schedule in advance of beginning revised operations.

12. Mobilization

13.1 Scope. Mobilization shall include the provision of the Construction Schedule; site review; obtaining all permits, insurance, and bonds; moving onto the site all plant and equipment; furnishing and erecting plants, temporary buildings, and other construction facilities, and removal of same at completion of the project; all as required for the proper performance and completion of the work.

Mobilization shall include, but not be limited to, the following principle items.

(a) Submittal and modification, as required, of the Construction Schedule.

(b) All associated documentation and submittals required by Exhibit A of the contract.

(c) Installing temporary construction power and wiring.

(d) Establishing fire protection system.

(e) Developing construction water supply.

(f) Providing on-site sanitary facilities and portable water facilities, as required.

(g) Arranging for and erection of Contractor's work and storage yard.

(h) Submittal of all required insurance certificates and bonds, including subcontractors.

(i) Obtaining all required permits.

(j) Posting all OSHA required notices and establishment of safety programs.

(k) Have the Contractor's superintendent at the job site full-time.

(l) Pot-holing and other research and review as necessary to verify site conditions and utility locations, including research and review as necessary for change orders.

(m) Demobilization.

13. Markup. The following percentages shall apply for additional work:

Profit	5% maximum
Overhead	5% maximum

The markups mentioned hereinafter shall include, but are not limited to, all costs for the services of superintendents, project managers, timekeepers and other personnel not working directly on the change order, and pickup or yard trucks used by the above personnel, and other vehicles and/or equipment present at the jobsite but not directly used in actual construction activities. Incidental movements of labor, materials, supplies or equipment shall not be considered as use in actual construction activities. These costs shall not be reported as labor or equipment elsewhere, except when actually performing work directly on the change order and then shall only be reported at the labor classification of the work performed.

The City shall not pay for the cost of foremen or a superintendent unless authorized in advance by the City Manager. To the sum of the costs and markups provided for in this subsection, one (1) percent shall be added as compensation for bonding.

14. Utilities. The Contractor shall provide coordination with all the utility companies involved and shall provide protection from damage to their facilities. The Contractor shall be responsible for repair or replacement to said facilities made necessary by its failure to provide required protection. The Contractor is required to include utility requirements in the Construction Schedule.

The Contractor shall be solely responsible to check all utility record maps, books, and/or other data in the possession of the CITY, other agencies, and/or all utility companies, and no allowance shall be made for any failure to have done so.

The Contractor shall utilize the services of "Underground Service Alert - Southern California" for utility locating in all public right-of-ways by calling 1-800-227-2600 at least 48 hours prior to any excavation.

15. Completion, Acceptance and Warranty. If, in the CITY's judgment, the Work has been completed and is ready for acceptance, the CITY will so certify and will determine the date when the Work was completed. This will be the date when the Contractor is relieved from responsibility to protect the Work. The CITY may cause a Notice of Completion to be filed and recorded with the Los Angeles County Recorder's Office. At the CITY's option, the CITY may certify acceptance to the City Council who may then cause a Notice of Completion to be filed and recorded with the Los Angeles County Recorder's Office.

Manufacturer's warranties and guaranties furnished for materials used in the Work and instruction sheets and parts listed supplied with materials shall be delivered to the CITY

prior to acceptance of the Work. The duration of the warranty or guaranty shall be the standard of the industry with a minimum of 1 year from the date of Notice of Completion.

Manufacturer's warranties shall not relieve the Contractor of liability under these Specifications. Such warranties only shall supplement the Contractor's responsibility.

The CITY may require a manufacturer's warranty on any product offered for use.

16. Contractor's Representative. The Contractor's Representative shall be approved by the CITY prior to the start of the Work. If the designated representative is rejected, the Contractor shall immediately designate another representative in writing and submit to the City for consideration. The CITY shall have the authority to require the Contractor to remove its representative and/or alternate representative at any time and at no cost to the CITY.

17. Waste Reduction and Recycling Requirements for Construction and Demolition Projects

Section 43.8.1 Definitions.

For the purposes of this Article, the following definitions apply:
a) "Administrative penalty" means any penalty or fine assessed to an applicant.
b) "Applicant" means any individual, firm, limited liability company, association, partnership, political subdivision, government agency, municipality, industry, public or private corporation, or any other entity whatsoever that applies to the City for the applicable permits or approvals to undertake construction, demolition, or renovation projects within the City.
c) "Certified facility program" means a program wherein a recycling/reuse facility has been pre-approved by the City to provide a minimum of 50% diversion for all processed loads.
d) "Construction" means the building or improvement of any facility or structure or any portion thereof including any tenant improvements to an existing facility or structure.
e) "Construction and Demolition Debris" ("C&D Debris") means used or discarded materials removed from premises during construction or renovation of a structure resulting from construction, remodeling, repair or demolition operations on any pavement, residential or commercial building or other structure.
f) "Conversion factor" means the value set forth in the standardized volume-to-weight conversion table approved by the City for use in estimating the volume or weight of materials identified in a Waste Management Plan.
g) "Covered project" means:
1) All demolition projects; and
2) All construction and renovation projects in which the total costs are, or are projected to be, greater than or equal to one hundred thousand dollars ($100,000).
h) "Deconstruction" means the process of carefully dismantling a building or structure in order to salvage components for reuse or recycling.
i) "Demolitions" means the razing, ruining, tearing down or wrecking of any facility, structure, pavement or building, whether in whole or in part, whether interior or exterior.
j) "Divert" means to use material for any purpose other than disposal in a landfill or transformation facility.
k) "Diversion requirement" means redirection from the waste stream of at least 50 percent of the total C&D Debris generated by a project via reuse or recycling.

l) "Non-covered project" means a construction or renovation project in which the total costs are not projected to be greater than or equal to one hundred thousand dollars ($100,000).
m) "Project" means any activity that requires an application for a building permit, demolition permit, or any similar permit from the City.
n) "Recycling" means the process of collecting, sorting, cleansing, treating and reconstituting materials that would otherwise become solid waste, and returning them to the economic mainstream in the form of raw material for new, reused or reconstituted products which meet the quality standards necessary to be used in the marketplace.
o) "Renovation" means any change, addition or modification in an existing structure.
p) "Reuse" means further or repeated use of materials in their original form.
q) "Salvage" means the controlled removal of C&D Debris from a permitted building or demolition site for the purpose of recycling, reuse or storage for later recycling or reuse.
r) "Total costs" means the total construction value of the project using standard commercial and residential valuation formulas.
s) "Waste Management Plan" ("WMP") means a completed WMP form, approved by the City for the purpose of compliance with this Article, submitted by an applicant for any covered project.
t) "WMP Compliance Official" ("Official") means the designated City employee(s) authorized and responsible for implementing this Article.

Section 43.8.2. Threshold For Covered Projects.

a) Covered Projects. For the purposes of determining whether a project meets the threshold, all phases of a project and all related projects taking place on single or adjoining parcels, as determined by the Official, will be deemed a single project.
b) Non-covered Projects. Non-covered projects are not required to meet the waste diversion requirements of this Article. However, an applicant for a non-covered project will be encouraged to divert as much project-related C&D Debris as possible.

Section 43.8.3. Submittal Of A Waste Management Plan.

a) An applicant for a covered project must submit a WMP on a form approved by the City as part of the application requirements for a demolition, construction or remodeling permit. The completed WMP must include the following:
1) Estimated weight of project C&D Debris, by material type, that will be generated; and
2) Maximum weight of each material type that can be feasibly diverted through deconstruction, reuse or recycling; and
3) Facility or vendor that will be used to collect or receive that material; and
4) Estimated weight of C&D Debris that will be landfilled; and
5) Total square footage of the project.

Section 43.8.4. Review Of A Waste Management Plan..

a) Approval. Notwithstanding any other provision of this Code, no permits will be issued for any covered project, unless and until the Official has approved the WMP. If the Official determines that the required conditions have been met, the WMP will be marked "Approved" and a copy of the WMP returned to the applicant. A WMP will be approved only if the Official determines that the following conditions have been met:
1) The WMP provides all of the information set forth in Section 43.8.3; and
2) The WMP indicates that at least 50 percent of all C&D Debris generated by the project will be diverted through recycling, deconstruction or reuse.

b) Exception for Public Health or Safety. WMP approval will not be required when the City determines that an emergency demolition is required to protect public health or safety.
c) Non-approval. If the Official determines that the WMP does not meet the required conditions, the Official will either:
1) Return to the applicant the WMP marked "Denied", including a statement of reasons for non-approval; or
2) Return to the applicant the WMP marked "Further Explanation Required."

Section 43.8.5 Compliance With A Waste Management Plan.

a) Documentation. Prior to the issuance of a certificate of occupancy for any covered project, the applicant must submit documentation that it has met the diversion requirement for the project to the Official. This documentation must include the following:
1) A copy of the previously approved WMP for the project with the addition of the actual material volume or weight generated by the project; and
2) Receipts from both disposal and diversion facilities and/or vendors that received each material showing whether the material was landfilled or deconstructed, reused and/or recycled; and
3) Any additional information that the applicant believes is relevant to determining its efforts to comply with this Article; and
4) If the City creates a certified facility program, documentation that a certified facility was used for disposal/recycling for a project will achieve compliance with the requirements of this Article.
b) Weighing of C&D Debris. An applicant must make reasonable efforts to ensure that all C&D Debris diverted or landfilled is measured and recorded using the most accurate method of measurement available. To the extent practical, all C&D Debris must be weighed by measurement on scales. Scales must be in compliance with all regulatory requirements for accuracy and maintenance as set forth by the State of California Bureau of Weights and Measures. For C&D Debris for which weighing is not practical due to its small size or to other considerations as determined by the Official, a volumetric measurement will be used. For conversion of volumetric measurements to weight, the applicant must use the standardized conversion rates approved by the City for this purpose.
c) Determination of compliance. The Official will review the information submitted by the applicant and determine whether the applicant has complied with the diversion requirement as follows:
1) Full compliance: If the Official determines that the applicant has fully complied with the diversion requirement applicable to the project, such compliance will be indicated on the WMP.
2) Noncompliance: Administrative Penalty: If the Official determines that the applicant has not complied with this Article, or the applicant fails to submit the documentation required, then the applicant will be assessed an administrative penalty. The amount of the penalty assessed will be ten thousand dollars ($10,000) for demolition projects and five thousand dollars ($5,000) for construction and remodeling projects. A project that includes demolition in addition to construction or remodeling will be subject to the demolition penalty amount.

Section 43.8.6. Infeasibility Exemption.

a) Application. If an application for a covered project experiences unique circumstances that the applicant believes make it infeasible to comply with the

diversion requirement, the applicant may apply for an exemption at the time that the WMP is submitted. An applicant applying for an exemption must indicate on the WMP the minimum rate of diversion that is feasible for each material and the specific circumstances that make it infeasible to comply with the diversion requirement.

b) Meeting with the Official. The Official will review the information supplied by the applicant and may meet with the applicant to discuss possible ways of meeting the diversion requirement.

c) Granting of exemption. The Official will issue an infeasibility exemption if the following findings are made:

1) Circumstances exist which are unique to the project such that compliance with the provisions of this Article would create an unusual burden on the project which is different than that of similarly situated projects; or

2) For a specific project, compliance with the requirements of the ordinance codified in this Article would result in minimal or no increase in recycled materials or reduction in the waste stream; or

3) That diversion of one or more substances involved in the project presents unique and burdensome obstacles and would create an especially onerous economic burden on the project unless diversion of that substance is reduced or eliminated; or

4) A project is a re-roofing Project.

If the Official is able to make one or more of the above findings for a project, the Official may excuse the project from compliance with this Article, or determine the maximum feasible reduced diversion rate for each material and indicate this rate on the WMP submitted by the applicant.

d) Denial of exemption. If the Official determines that it is possible for the applicant to meet the diversion requirement, the Official will so inform the applicant in writing. The applicant will have thirty (30) days to resubmit a WMP. If the applicant fails to resubmit the WMP, or if the resubmitted WMP does not comply with Section 43.8.3, the Official will deny the WMP in accordance with Section 43.8.4.

Section 43.8.7. Appeal.

a) The determination of the Official may be appealed to the Public Works Director or his/her designee upon written request of any applicant. An applicant must file the appeal within fifteen (15) days after the rendering of the original decision. The date of the rendering of the original decision will be determined in accordance with Section 11.6.1 of this Code. The decision of the Public Works Director or his/her designee will be final.

b) The notice of appeal of the decision of the Official must contain the following information in addition to the information given by the applicant thereon or reasonably required by the City Clerk therefor:

1) The name, address, and telephone number of the applicant; and

2) The type of action requested; and

3) The date on which said decision was made and the name of the Official taking such action; and

4) The grounds on which the appeal is taken.

c) The fee for filing an appeal will be charged as provided by resolution of the City Council.

CITY OF TORRANCE

Construction & Demolition Waste Management Plan (WMP)

THE REQUIRED GOAL IS TO REUSE OR RECYCLE AT LEAST 50% OF PROJECT WASTE

1) As part of your application, you must complete the front and back of this page and the "estimate" or left side of the table on the backside of this page to the best of your ability, indicating that you will recycle at least 50% of the waste from the project.

2) As your project proceeds, collect and keep receipts of all waste disposed, recycled, reused or donated.

3) To final your project, you must then fill out the "actual" or right side of the table on the backside of this sheet, and submit it again with all the receipts to verify that at least 50% of the project's waste was diverted from the landfills.

If you have any questions about the City's C & D Recycling Ordinance or how to fill out this form, please call (310) 781-6900.

Use tons to quantify total estimated waste and percentages of materials. A conversion table is available. Ask your hauler, recycler or site cleanup vendor to assist you with this WMP.

Please note, if you are contracting with a different company to haul your waste or using a roll off box from another company, that company must have a business license to operate in the City of Torrance.

A COPY OF THIS WMP AND RECEIPTS (TICKETS) FOR ALL RECYCLING AND DISPOSAL SHALL BE SUBMITTED BEFORE THE PROJECT WILL RECEIVE FINAL BUILDING APPROVAL. (FOR DEMO PERMITS, THE RECEIPTS FOR THE DEMOLITION WASTE SHOULD BE PROVIDED BEFORE THE FIRST FOOTING INSPECTION AFTER THE BUILDING PERMIT HAS BEEN ISSUED.)

Project Name: _____

Location: _____

Requesting Infeasibility Exemption: ☐ Yes ☐ No

Contractor Name: _____ Contact Name: _____

Address: _____ Contact Phone: _____

Recycler: _____ Recycler Contact: _____

Recycler Address: _____ Recycler Contact Phone: _____

CITY USE ONLY

	Application (Date)	Final (Date)
Approved		
Further explanation needed (see attached)		
Denied		
Infeasibility Exemption Approved		
Reviewed By		

Submit this form and the attached Waste Management Plan Table to: WMP
Compliance Official

City of Torrance
20500 Madrona Avenue
Torrance, CA 90503

CITY OF TORRANCE
Construction & Demolition Waste Management Plan Table

Project Name: _____

Total Estimated Waste Generated by Project: _____ (in tons). (Ask your hauler, recycler or site cleanup vendor to assist you. Use receipts from your previous jobs for estimates)					
Complete and return with Building Permit Application			Complete and return with receipts prior to final building approval		
Material Type	Estimated Reused/ Recycled	Estimated Disposed/ Landfilled	Actual Reused/ Recycled	Actual Disposed/ Landfilled	Vendor or Facility Used (Destination)
Asphalt & Concrete					
Bricks/Masonry/Tiles					
Building Materials (doors, windows, fixtures, etc.)					
Cardboard					
Concrete Pavement and Grindings					
Drywall (new, unpainted)					
Asphalt Pavement Grindings					
Landscape Debris (Plant & Tree Trimmings)					
Scrap Metal					
Unpainted Wood & Pallets					
Other (painted wood & drywall, roofing, etc.)					
Mixed C&D*					
Trash/Garbage					
TOTAL					

If you are requesting an infeasibility exemption and the estimated amount reused/recycled is less than 50%, please explain why (attach additional sheets if necessary):

_____

If the actual amount reused/recycled is less than 50%, please explain why:

_____

Prepared by (please print): _____ Date: _____

Signature: _____ Phone Number:_____

* *Mixed C&D* is defined as a mixture of three or more materials (e.g. wood, drywall, roofing, etc.) from construction or demolition sites that will be taken to a facility capable of recycling those commingled materials.

SECTION E. PAYMENTS TO CONTRACTOR AND CLAIMS

1. Breakdown of Contract Prices. The Contractor shall, within ten (10) working days of receipt of a request from the City, submit a complete breakdown of lump sum bid prices showing the value assigned to each part of the work, including an allowance for profit and overhead. The breakdown shall include separate line for each subcontractor's bid and/or contract amount. In submitting the breakdown, the Contractor certifies that it is not unbalanced and that the value assigned to each part of the work represents its estimate of the actual cost, including profit and overhead, of performing that part of the work. The breakdown shall be sufficiently detailed to permit its use by the City Manager as one of the bases for evaluating requests for payment. No extra costs shall be allowed for these breakdowns.

2. Payment for Labor and Materials. The Contractor shall pay and cause the subcontractors to pay any and all accounts for labor, including Worker's Compensation premiums, State Unemployment and Federal Social Security payments and all other wage and salary deductions required by law. The Contractor also shall pay and cause the subcontractors to pay any and all accounts for services, equipment and materials used by it and the subcontractors during the performance of work under this contract. All such accounts shall be paid as they become due and payable. If requested by the City Manager, the Contractor shall immediately furnish the City with proof of payment of such accounts.

3. Additional Work. Payment for additional work and all expenditures in excess of the bid amount must be authorized in writing by the City Manager. Such authorization shall be obtained by the Contractor prior to engaging in additional work. It shall be the Contractor's sole responsibility to obtain written approval from the City Manager for any change(s) in material or in the work proposed by suppliers or subcontractors. No payment shall be made to the Contractor for additional work which has not been approved in writing, and the Contractor hereby agrees that it shall have no right to additional compensation for any work not so authorized.

4. Claims. The Contractor shall not be entitled to the payment of any additional compensation for any cause, including any act, or failure to act, by the City, or the happening of any event, thing or occurrence, unless he shall have given the City due written notice of potential claim as hereinafter specified.

   The written notice of potential claim shall set forth the reasons for which the Contractor believes additional compensation will or may be due, the nature of the costs involved, and, insofar as possible, the amount of the potential claim. Said notice shall be submitted on a form approved by the City at least forty-eight (48) hours (two working days) in advance of performing said work, unless the work is of an emergency nature, in which case the Contractor shall notify and obtain approval from the Inspector prior to commencing the work. The City Manager may require the Contractor to delay construction involving the claim, but no other work shall be delayed, and the Contractor shall not be allowed additional costs for any said delay but may be allowed on extension of time if the City Manager agrees that the work delayed is a controlling element of the Construction Schedule. The Contractor shall be required to submit any supporting data (or a detailed written explanation justifying further delay) within five (5) Work Days of a

request from the City Manager and shall be responsible for any delays resulting from late and/or incomplete submittals. By submitting a Bid, the Contractor hereby agrees that this Section shall supersede Sections 6-6.3 and 6-6.4 of the Standard Specifications.

The City shall be the sole authority to interpret all plans, specifications and contract documents, and no claim shall be accepted which is based on the Contractor's ignorance, misunderstanding or noncompliance with any provision or portion thereof.
The Contractor shall be responsible to provide all data and to obtain all approvals required by said Specifications. No claims or extras shall be approved by the City unless all work was done under the direction of and subject to the approval of the Inspector.

It is the intention of this Subsection that differences between the parties arising under and by virtue of the Contract be brought to the attention of the City Manager at the earliest possible time in order that such matters may be settled, if possible, or other appropriate action promptly taken. The Contractor hereby agrees that it shall have no right to additional compensation for any claim that may be based on any such act, failure to act, event, thing or occurrence for which no written notice of potential claim as herein required was filed.

5. Noncompliance with Plans and Specifications. Failure of the Contractor to comply with any requirement of the Plans and Specifications, and/or to immediately remedy any such noncompliance upon notice from the City Manager, may result in suspension of Contract Progress Payments. Any Progress Payments so suspended shall remain in suspension until the Contractor's operations and/or submittals are brought into compliance to the satisfaction of the City Manager. No additional compensation shall be allowed as a result of suspension of Progress Payments due to noncompliance with the plans or specifications. The Contractor shall not be permitted to stop work due to said suspension of Progress Payments.

6. Request for Payment. Contractor shall submit all requests for payment on AIA Document G702 – Application and Certificate for Payment and G703- Continuation Sheet. For each item provide a column for listing: Item Number; Description of Work; Scheduled Value, Previous Application; Authorized Change Orders; Total completed and Stored to Date of Application; Percentage of Completion; Balance to Finish; and Retainage.

Prior to submittal of said form, all items for which payment is requested shall be checked and approved in writing by the City Manager. No payments will be made unless all back-up data is submitted with the payment request and the Progress Payment Invoice is signed by both Contractor and Manager.

The City will retain 5 percent of the value of all work done and materials installed as part security for fulfillment of the contract by Contractor. The full 5 percent retention will be retained on all payments for 35 days after the filing of the Notice of Completion.

There shall be no separate payment for any relocations, barriers or forms, grading or temporary construction required to construct the improvements herein. Payment for these items shall be absorbed in the Bid Prices for the applicable work to which they are appurtenant, and no extra costs shall be allowed.

The payment of amounts due to the Contractor shall be contingent upon the Contractor furnishing the City with a release of all claims against the City arising by virtue of the Contract related to said amounts. It is the contractor's responsibility to provide the correct releases in order to obtain payment by the City. The Contractor shall provide the City with Unconditional Lien Release on Final Payment with a zero balance is required from all material suppliers and subcontractors with the request for final payment.

PART D

BID DOCUMENTS

BIDDER'S PROPOSAL

BID FOR RENOVATION OF THE PERSONNEL BUILDING
B2012-44

In accordance with the Notice Inviting Bids pertaining to the receiving of sealed proposals by the City Clerk of the City of Torrance for the above titled improvement, the undersigned hereby proposes to furnish all work to be performed in accordance with the Plans, Specifications and Contract Documents, prepared by Withee Malcolm Architects and City of Torrance for the lump sum bid as set forth in the following schedules.

Assignment of Contractor's values:

Item	Description	Total Amount In Figures*
Division 01	General Requirements:	
Division 02	Site Work:	
Division 03	Concrete:	
Division 04	Masonry:	
Division 05	Metals:	
Division 06	Wood and Plastics:	
Division 07	Thermal and Moisture Protection:	
Division 08	Doors and Windows:	
Division 09	Finishes:	
Division 10	Specialties:	
Division 11	Equipment:	
Division 12	Furnishings:	
Division 13	Special Construction:	

Item	Description	Total Amount In figures*
Division 14	Conveying Systems:	
Division 15	Mechanical:	
Division 16	Electrical:	
	B2012-44 -BID TOTAL- in figures*	

BID TOTAL: _____

(Words)*

***BID MAY BE REJECTED IF TOTAL IS NOT SHOWN IN FIGURES AND WORDS.**

Bid Alternate #1	Switch the location of the Conference Room #111 with the women's restroom #110 and men's restroom # 109	

B2012- BID ALTERNATE #1 TOTAL: _____

(Words*)

Bid Alternate #2	Carpet in the Training Room #125	

B2012- BID ALTERNATE #2 TOTAL: _____

(Words*)

The City of Torrance awards to the lowest responsible bidder per the Torrance Municipal Code. Based on the funding available, the City reserves the right to select any combination of base bid and bid alternate(s) to determine the lowest responsible bidder for award.

Bid Proposal Continued- B2012-44

The undersigned furthermore agrees to enter into and execute a contract, with necessary bonds, at the prices set forth herein and in case of default in executing such contract, with necessary bonds, the check or bond accompanying this bid and the money payable thereon shall be forfeited thereby to and remain the property of the City of Torrance.

The above prices include all work appurtenant to the various items as outlined in the specifications and all work or expense required for the satisfactory completion of said item.

The undersigned declares that it has carefully examined the Plans, Specifications, and Contract Documents, and has investigated the site of the work and is familiar with the conditions thereon.

_____ _____

Contractor Name Signer's Name and Title

Date:_____ License No. & Classification _____

Address: _____

Phone:_____ Fax: _____

ACKNOWLEDGMENT OF ADDENDA RECEIVED

B2012-44

The Bidder shall acknowledge the receipt of addenda by placing an "X" by each addendum received.

Addendum No. 1 _____

Addendum No. 2 _____

Addendum No. 3 _____

Addendum No. 4 _____

Addendum No. 5 _____

Addendum No. 6 _____

Addendum No. 7 _____

Addendum No. 8 _____

If an addendum or addenda have been issued by the City and not noted above as being received by the Bidder, the Bid Proposal may be rejected.

_____ _____

Bidder's Signature Date

STATE OF CALIFORNIA }
}
COUNTY OF _____ }

CONTRACTOR'S AFFIDAVIT
B2012-44

_____, being first duly sworn, deposes and says:

1. That he is the_____
Title

of _____
(Name of Partnership, Corporation, or Sole Proprietorship)

hereinafter called "Contractor," who has submitted to the City of Torrance a proposal for the BID FOR RENOVATION OF THE PERSONNEL BUILDING, B2012-44

2. That said proposal is genuine; that the same is not sham; that all statement of facts therein are true;

3. That such proposal was not made in the interest or behalf of any person, partnership, company, association, organization or corporation not named or disclosed;

4. That the Contractor did not directly or indirectly induce, solicit or agree with any-one else to submit a false or sham bid, refrain from bidding, or withdraw the bid, to raise or fix the bid price of the Contractor or anyone else, or to raise or fix any overhead, profit or cost element of the Contractor's price or the price of anyone else; and did not attempt to induce action prejudicial to the interest of the City of Torrance or any other bidder, or anyone else interested in the proposed contract;

5. That the Contractor has not in any manner sought by collusion to secure for itself an advantage over any other bidder or to induce action prejudicial to the interests of the City of Torrance, or of any other bidder or of anyone else interested in the proposed contract;

6. That the Contractor has not accepted any bid from any subcontractor or materialman through any bid depository, the bylaws, rules or regulations of which prohibit or prevent the Contractor from considering any bid from any subcontractor or materialman, which is not processed through said bid depository, or which prevent any subcontractor or materialman from bidding to any contractor who does not use the facilities of or accept bids from or through such bid depository;

CONTRACTOR'S AFFIDAVIT (CONTINUED)

7. That the Contractor did not, directly or indirectly, submit the Contractor's bid price or any breakdown thereof, or the contents thereof, or divulge information or data relative thereto, to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof, or to any individual or group of Individuals, except to the City of Torrance, or to any person or persons who have a partnership or other financial interest with said Contractor in its business.

Dated this _____ day of _____, 20_____.

Subscribed and Sworn to
before me this _____
of _____, 20_____

_____
(Contractor)

_____
(Title)

_____
Notary Public in and for said
County and State.
(Seal)

BID BOND

B2012-44

KNOW ALL MEN BY THESE PRESENTS: That we, _____
_____

as principal, and _____
as sureties, are held and firmly bound unto the City of Torrance, State of California, in the penal sum of _____ dollars ($_____), for the payment whereof we hereby bind ourselves, our successors, heirs, executors or administrators jointly and severally, firmly by these presents.

The condition of this obligation is such that, whereas the above bounded principal is about to file with and submit to the City of Torrance a bid or proposal for the performance of certain work as required in the City of Torrance, Project No. B2012-44, said work being: Renovation of the Human Resources Building, in compliance with the Specifications therefore under an invitation of said City contained in a notice or advertisement for bids or proposals; now if the bid or proposal of said principal shall be accepted and if said work be thereupon awarded to the principal by said City and if the said principal shall enter into a contract with the said City in accordance with said bid or proposal, or if the bid or proposal of the said principal is rejected, then this bond shall be void and of no effect and otherwise in full force and effect.

WITNESS our hands this _____ day of _____, 20 _____.

_____
Principal

_____
Surety/Attorney-in-Fact

_____
Signature

Name: _____
Local Address: _____
_____
Phone No.: _____
Fax No.: _____

LIST OF SUBCONTRACTORS

The Bidder is required to fill in the following blanks in accordance with the provisions of the Subletting and Subcontracting Fair Practices Act (Chapter 2 of Division 5, Title 1 of the Government Code of the State of California) and should familiarize itself with Section 2-3 of the Standard Specifications.

1. Name Under Which Subcontractor is Licensed: _____

Subcontractor's Address: _____

Specific Description of Sub-Contract: _____

License Number: _____ CA License Classification/Type: _____

2. Name Under Which Subcontractor is Licensed: _____

Subcontractor's Address: _____

Specific Description of Sub-Contract: _____

License Number: _____ CA License Classification/Type: _____

3. Name Under Which Subcontractor is Licensed: _____

Subcontractor's Address: _____

Specific Description of Sub-Contract: _____

License Number: _____ CA License Classification/Type: _____

4. Name Under Which Subcontractor is Licensed: _____

Subcontractor's Address: _____

Specific Description of Sub-Contract: _____

License Number: _____ CA License Classification/Type: _____

Subcontractors listed in accordance with the provisions of Section 2-3 must be properly licensed under the laws of the State of California for the type of work which they are to perform. Do not list alternate subcontractors for the same work.

REFERENCES

(List work similar in magnitude and degree of difficulty completed by Contractor within the past five (5) years.)

1. Name (Firm/Agency): _____

Address:_____

Contact Person:_____Telephone No.:_____

Title of Project:_____

Project Location:_____

Date of Completion_____Contract Amount:$_____

2. Name (Firm/Agency): _____

Address:_____

Contact Person:_____Telephone No.:_____

Title of Project:_____

Project Location:_____

Date of Completion_____Contract Amount:$_____

3. Name (Firm/Agency): _____

Address:_____

Contact Person:_____Telephone No.:_____

Title of Project:_____

Project Location:_____

Date of Completion_____Contract Amount:$_____

4. Name (Firm/Agency): _____

Address:_____

Contact Person:_____Telephone No.:_____

Title of Project:_____

Project Location:_____

Date of Completion_____Contract Amount:$_____

Bidder's Information

The bidder must provide a detailed list of the trades and the description of the work they will perform with their own company for this project.

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

11. _____

12. _____

13. _____

14. _____

Contractor's License No.: _____ Class: _____

Date first obtained: _____

Has License ever been suspended or revoked? _____

If yes, describe when and why _____

Any current claims against License or Bond? _____

If yes, describe claims: _____

Type of entity (check one)

_____ Incorporated _____ Partnership _____ Sole Proprietorship

If incorporated, in what state _____

Federal Tax ID Number #_____

Principals in Company (List all - attach additional sheets if necessary):

NAME	TITLE	LICENSE NO. (If Applicable)
_____	_____	_____
_____	_____	_____
_____	_____	_____

PART E

DOCUMENTS TO BE COMPLETED AND DELIVERED TO CITY AS PART OF CONTRACT WITH THE CITY

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

That we, _____as Principal(s) and ____a corporation, incorporated, organized, and existing under the laws of the State of _____, and authorized to execute bonds and undertakings and to do a general surety business in the State of California, as Surety, are jointly and severally held and firmly bound unto the City of Torrance, a municipal corporation, located in the County of Los Angeles, State of California, in the full and just sum of: _____ Dollars ($_____), lawful money of the United States of America, for the payment of which sum, well and truly to be made, we bind ourselves and our respective heirs, executors, administrators, representative, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that: WHEREAS, said Principal(s) have/has entered into, or are/is about to enter into, a certain written contract or agreement, dated as of the _____ day of _____, 20____, with the said City of Torrance for the RENOVATION OF THE PERSONNEL BUILDING B2012-44, all as is more specifically set forth in said contract or agreement, a full, true and correct copy of which is hereunto attached, and hereby referred to and by this reference incorporated herein and made a part hereof;

NOW, THEREFORE, if the said Principal(s) shall faithfully and well and truly do, perform and complete, or cause to be done, performed and complete, each and all of the covenants, terms, conditions, requirements, obligations, acts and things, to be met, done or performed by said Principal(s), including any guarantee period as set forth in, or required by, said contract or agreement, all at and within the time or times, and in the manner as therein specified and contemplated, then this bond and obligation shall be null and void; otherwise it shall be and remain in full force, virtue and effect.

The said Surety, for value received, hereby stipulates and agrees that no amendment, change, extension of time, alteration or addition to said contract or agreement, or of any feature or item or items of performance required therein or there under, shall in any manner affect its obligations on or under this bond; and said Surety does hereby waive notice of any such amendment, change, extension of time, alteration, or addition to said contract or agreement, and of any feature or item or items of performance required therein or there under.

PERFORMANCE BOND (CONTINUED)

In the event any suit, action or proceedings is instituted to recover on this bond or obligation, said Surety will pay, and does hereby agree to pay, as attorney's fees for said City, such sum as the Court in any such suit, action or proceeding may adjudge reasonable.

EXECUTED, SEALED AND DATED this _____ day of _____, 20____

CORPORATE SEAL

PRINCIPAL(S):

BY _____

BY _____

CORPORATE SEAL

SURETY:

BY _____

Name: _____
Local Address: _____
_____
Phone No.: _____
Fax No.: _____

LABOR AND MATERIAL BOND

KNOW ALL MEN BY THESE PRESENTS:

That we,_____
As Principal(s) and _____ a corporation, incorporated, organized, and existing under the laws of the State of _____, and authorized to execute bonds and undertakings and to do a general surety business in the State of California, as Surety, are jointly and severally held and firmly bound unto:

(a) The State of California for the use and benefit of the State Treasurer, as ex-officio Treasurer and custodian of the Unemployment Fund of said State; and

(b) The City of Torrance, California; and

(c) Any and all persons who do or perform or who did or performed work or labor upon or in connection with the work or improvement referred to in the contract or agreement hereinafter mentioned; and

(d) Any and all materialmen, persons, companies, firms, association, or corporations, supplying or furnishing any materials, provisions, provender, transportation, appliances or power, or other supplies used in, upon, for or about or in connection with the performance of the work or improvement contracted to be executed, done, made or performed under said contract or agreement; and

(e) Any and all persons, companies, firms, associations, or corporations furnishing, renting, or hiring teams, equipment, implements or machinery for, in connection with, or contributing to, said work to be done or improvement to be made under said contract or agreement; and

(f) Any and all persons, companies, firms, associations, or corporations who supply both work and materials;

and whose claim has not been paid by said Principal(s), in full and just sum of _____ Dollars ($_____), lawful money of the United States of America, for the payment of which will and truly to be made, said Principal(s) and said Surety do hereby bind themselves and their respective heirs, executors, administrators, representatives, successors and assigns, jointly and severally, firmly by these presents.

LABOR AND MATERIAL BOND (CONTINUED)

THE CONDITION OF THE FOREGOING OBLIGATION IS SUCH, THAT: WHEREAS, said Principal(s) have/has entered into or are/is about to enter into a certain written contract or agreement, dated as of the _____ day of _____20 ___, with the City of Torrance for the RENOVATION OF THE PERSONNEL BUILDING, B2012-44, all as is more specifically set forth in said contract or agreement, a full, true and correct copy of which is hereunto attached, and hereby referred to and by this reference incorporated herein and made a part hereof;

NOW, THEREFORE, if the said Principal(s) (or any of his/her, its, or their subcontractors) under said contract or agreement fails or fail to pay:

(1) For any materials, provisions, provender, transportation, appliances, or power, or other supplies; or

(2) For the hire of any teams, equipment, implements, or machinery; or

(3) For any work or labor; supplies, furnished, provided, used, done or performed in, upon, for or about or in connection with the said work or improvement; or

(4) For amounts due under the Unemployment Insurance Act of the State of California with respect to such work or improvement;

the Surety on this bond will pay the same in an amount not exceeding the sum hereinabove specified in this bond; and, also, in case suit is brought upon this bond, said Surety will (and does hereby agree to) pay a reasonable attorney's fee, to be fixed and taxed as costs, and included in the judgment therein rendered.

This bond shall (and it is hereby made to) insure to the benefit of any and all persons entitled to file claims under Section 1192.1 of the Code of Civil Procedure of the State of California, so as to give a right of action to them or their assigns in any suit brought upon this bond, all as contemplated under the provisions of Section 4205 of the Government Code, and of Chapter 1 of Title 4 of Part 3 of the Code of Civil Procedure, of the State of California.

This bond is executed and filed in connection with said contract or agreement hereunto attached to comply with each and all of the provisions of the laws of the State of California above mentioned or referred to, and of all amendments thereto, and the obligors so intend and do hereby bind themselves accordingly.

LABOR AND MATERIAL BOND (CONTINUED)

The said Surety, for value received, hereby stipulates and agrees that no amendment, change, extension of time, alteration, or addition to said contract or agreement, or of any feature or item or items of performance required therein or thereunder, shall in any manner affect its obligations on or under this bond; and said Surety does hereby waive notice of any such amendment, change, extension of time, alteration, or addition to said contract or agreement, and of any feature or item or items of performance required therein or thereunder.

EXECUTED, SEALED AND DATED this _____ day of _____, 20 _____

CORPORATE SEAL

PRINCIPAL:

BY _____

CORPORATE SEAL

SURETY:

BY _____

Name: _____
Local Address: _____
_____
Phone No.: _____
Fax No.: _____

WORKERS' COMPENSATION INSURANCE CERTIFICATION

In compliance with Section 7-4 of the Standard Specifications, the Contractor shall complete and submit the following certification with a Certificate of Insurance before execution of the contract.

I am aware of, and will comply with, Section 3700 of the Labor Code, requiring every employer to be insured against liability for Workers' Compensation or to undertake self-insurance before commencing any of the work.

_____
CONTRACTOR

By: _____

Title: _____

PUBLIC WORKS AGREEMENT

This PUBLIC WORKS AGREEMENT ("Agreement") is made and entered into as of Effective Date, by and between the CITY OF TORRANCE, a municipal corporation ("CITY"), and Company Name, type of Entity.

RECITALS:

A. The CITY wishes to retain the services of an experienced and qualified CONTRACTOR to furnish all labor, materials, tools, equipment and incidentals in accordance with the plans and specifications prepared for the City of Torrance by Withee Malcolm Architects, Inc;

B. In order to obtain the desired services, The CITY has circulated a Notice Inviting Bids for Renovation of the Personnel Building, Notice Inviting Bids No. **B2012-44** (the "NIB"); and

C. CONTRACTOR has submitted a Bid (the "Bid") in response to the NIB. CONTRACTOR represents that it is qualified to perform those services requested in the Plans and Specifications. Based upon its review of all Bids submitted in response to the NIB, The CITY is willing to award the contract to CONTRACTOR.

AGREEMENT:

1. SERVICES TO BE PERFORMED BY CONTRACTOR

CONTRACTOR will provide the services and install those materials listed in the Plans and Specifications, which are on file in the General Services Department. The NIB and the Plans and Specifications are made a part of this Agreement. A copy of the Bid is attached as Exhibit A.

2. TERM

Unless earlier terminated in accordance with Paragraph 4 below, this Agreement will continue in full force and effect for one year from Effective Date.

3. COMPENSATION

A. CONTRACTOR's Fee.

For services rendered pursuant to this Agreement, CONTRACTOR will be paid in accordance with CONTRACTOR's Bid; provided, however, that in no event will the total amount of money paid the CONTRACTOR, for services initially contemplated by this Agreement, exceed the sum of $ unless otherwise first approved in writing by the CITY

B. Schedule of Payment.

Provided that the CONTRACTOR is not in default under the terms of this Agreement, upon presentation of an invoice, CONTRACTOR will be paid monthly, within 30 days after the date of the monthly invoice.

4. TERMINATION OF AGREEMENT

A. Termination by CITY for Convenience.

1. CITY may, at any time, terminate the Agreement for CITY's convenience and without cause.
2. Upon receipt of written notice from CITY of such termination for CITY's convenience, CONTRACTOR will:
   a. cease operations as directed by CITY in the notice;
   b. take actions necessary, or that CITY may direct, for the protection and preservation of the work; and
   c. except for work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

3. In case of such termination for CITY's convenience, CONTRACTOR will be entitled to receive payment for work executed; and costs incurred by reason of such termination, along with reasonable overhead and profit on the work not executed.

B. Termination for Cause.

1. If either party fails to perform any term, covenant or condition in this Agreement and that failure continues for 15 calendar days after the nondefaulting party gives the defaulting party written notice of the failure to perform, this Agreement may be terminated for cause; provided, however, that if during the notice period the defaulting party has promptly commenced and continues diligent efforts to remedy the default, the defaulting party will have such additional time as is reasonably necessary to remedy the default.

2. In the event this Agreement is terminated for cause by the default of the CONTRACTOR, the CITY may, at the expense of the CONTRACTOR and its surety, complete this Agreement or cause it to be completed. Any check or bond delivered to the CITY in connection with this Agreement, and the money payable thereon, will be forfeited to and remain the property of the CITY. All moneys due the CONTRACTOR under the terms of this Agreement will be retained by the CITY, but the retention will not release the CONTRACTOR and its surety from liability for the default. Under these circumstances, however, the CONTRACTOR and its surety will be credited with the amount of money retained, toward any amount by which the cost of completion exceeds the Agreement Sum and any amount authorized for extra services.

3. Termination for cause will not affect or terminate any of the rights of the CITY as against the CONTRACTOR or its surety then existing, or which may thereafter accrue because of the default; this provision is in addition to all other rights and remedies available to the CITY under law.

C. Termination for Breach of Law.

In the event the CONTRACTOR or any of its officers, directors, shareholders, employees, agents, subsidiaries or affiliates is convicted (i) of a criminal offense as an incident to obtaining or attempting to obtain a public or private contract or subcontract, or in the performance of a contract or subcontract; (ii) under state or federal statutes of embezzlement, theft, forgery, bribery, falsification or destruction of records, receiving stolen property, or any other offense indicating a lack of business integrity or business honesty which currently, seriously, and directly affects responsibility as a public consultant or contractor; (iii) under state or federal antitrust statutes arising out of the submission of bids or proposals; or (iv) of violation of Paragraph 19 of this Agreement; or for any other cause the CITY determines to be so serious and compelling as to affect CONTRACTOR's responsibility as a public consultant or contractor, including but not limited to, debarment by another governmental agency, then the CITY reserves the unilateral right to terminate this Agreement or to impose such other sanctions (which may include financial sanctions, temporary suspensions or any other condition deemed appropriate short of termination) as it deems proper. The CITY will not take action until CONTRACTOR has been given notice and an opportunity to present evidence in mitigation.

5. FORCE MAJEURE

If any party fails to perform its obligations because of strikes, lockouts, labor disputes, embargoes, acts of God, inability to obtain labor or materials or reasonable substitutes for labor or materials, governmental restrictions, governmental regulations, governmental controls, judicial orders, enemy or hostile governmental action, civil commotion, fire or other casualty, or other causes beyond the reasonable control of the party obligated to perform, then that party's performance shall be excused for a period equal to the period of such cause for failure to perform.

6. RETENTION OF FUNDS

CONTRACTOR authorizes the CITY to deduct from any amount payable to CONTRACTOR (whether or not arising out of this Agreement) any amounts the payment of which may be in dispute or that are necessary to compensate the CITY for any losses, costs, liabilities, or damages suffered by the CITY, and all amounts for which the CITY may be liable to third parties, by reason of CONTRACTOR's negligent acts or omissions or willful misconduct in performing or failing to perform CONTRACTOR's obligations under this Agreement. In the event that any claim is made by a third party, the amount or validity of which is disputed by CONTRACTOR, or any indebtedness exists that appears to be the basis for a claim of lien, the CITY may withhold from any payment due, without liability for interest because of the withholding, an amount sufficient to cover the claim. The failure of the CITY to exercise the right to deduct or to withhold will not, however, affect the obligations of CONTRACTOR to insure, indemnify, and protect the CITY as elsewhere provided in this Agreement.

7. THE CITY'S REPRESENTATIVE

Tom Kelly, Project Coordinator is designated as the "City Representative," authorized to act in its behalf with respect to the work and services specified in this Agreement and to make all decisions in connection with this Agreement. Whenever approval, directions, or other actions are required by the CITY under this Agreement, those actions will be taken by the City Representative, unless otherwise stated. The City Manager has the right to designate another City Representative at any time, by providing notice to CONTRACTOR.

8. CONTRACTOR REPRESENTATIVE(S)

The following principal(s) of CONTRACTOR are designated as being the principal(s) and representative(s) of CONTRACTOR authorized to act in its behalf with respect to the work specified in this Agreement and make all decisions in connection with this Agreement:

Company Representative

9. INDEPENDENT CONTRACTOR

The CONTRACTOR is, and at all times will remain as to the CITY, a wholly independent contractor. Neither the CITY nor any of its agents will have control over the conduct of the CONTRACTOR or any of the CONTRACTOR's employees, except as otherwise set forth in this Agreement. The CONTRACTOR may not, at any time or in any manner, represent that it or any of its agents or employees are in any manner agents or employees of the CITY.

10. BUSINESS LICENSE

The CONTRACTOR must obtain a City business license prior to the start of work under this Agreement, unless CONTRACTOR is qualified for an exemption.

11. OTHER LICENSES AND PERMITS

CONTRACTOR warrants that it has all professional, contracting and other permits and licenses required to undertake the work contemplated by this Agreement.

12. FAMILIARITY WITH WORK

By executing this Agreement, CONTRACTOR warrants that CONTRACTOR (a) has thoroughly investigated and considered the scope of services to be performed, (b) has carefully considered how the services should be performed, and (c) fully understands the facilities, difficulties and restrictions attending performance of the services under this Agreement. If the services involve work upon any site, CONTRACTOR warrants that CONTRACTOR has or will investigate the site and is or will be fully acquainted with the conditions there existing, prior to commencement of services set forth in this Agreement. Should CONTRACTOR discover any latent or unknown conditions that will materially

affect the performance of the services set forth in this Agreement, CONTRACTOR must immediately inform the CITY of that fact and may not
proceed except at CONTRACTOR's risk until written instructions are received from the CITY.

13. CARE OF WORK

CONTRACTOR must adopt reasonable methods during the life of the Agreement to furnish continuous protection to the work, and the equipment, materials, papers, documents, plans, studies and other components to prevent losses or damages, and will be responsible for all damages, to persons or property, until acceptance of the work by the CITY, except those losses or damages as may be caused by the CITY's own negligence.

14. CONTRACTOR'S ACCOUNTING RECORDS; OTHER PROJECT RECORDS

Records of the CONTRACTOR's time pertaining to the project, and records of accounts between the CITY and the CONTRACTOR, will be kept on a generally recognized accounting basis. CONTRACTOR will also maintain all other records, including without limitation specifications, drawings, progress reports and the like, relating to the project. All records will be available to the CITY during normal working hours. CONTRACTOR will maintain these records for three years after final payment.

15. INDEMNIFICATION

CONTRACTOR will indemnify, defend, and hold harmless CITY, the City Council, each member thereof, present and future, its officers, agents and employees from and against any and all liability, expenses, including defense costs and legal fees, and claims for damages whatsoever, including, but not limited to, those arising from breach of contract, bodily injury, death, personal injury, property damage, loss of use, or property loss however the same may be caused and regardless of the responsibility for negligence. The obligation to indemnify, defend and hold harmless includes, but is not limited to, any liability or expense, including defense costs and legal fees, arising from the negligent acts or omissions, or willful misconduct of CONTRACTOR, its officers, employees, agents, subcontractors or vendors. It is further agreed, CONTRACTOR's obligations to indemnify, defend and hold harmless will apply even in the event of concurrent negligence on the part of CITY, the City Council, each member thereof, present and future, or its officers, agents and employees, except for liability resulting solely from the negligence or willful misconduct of CITY, its officers, employees or agents. Payment by CITY is not a condition precedent to enforcement of this indemnity. In the event of any dispute between CONTRACTOR and CITY, as to whether liability arises from the sole negligence of the CITY or its officers, employees, agents, subcontractors or vendors, CONTRACTOR will be obligated to pay for CITY's defense until such time as a final judgment has been entered adjudicating the CITY as solely negligent. CONTRACTOR will not be entitled in the event of such a determination to any reimbursement of defense costs including but not limited to attorney's fees, expert fees and costs of litigation.

16. NON-LIABILITY OF THE CITY'S OFFICERS AND EMPLOYEES

No officer or employee of the CITY will be personally liable to CONTRACTOR, in the event of any default or breach by the CITY or for any amount that may become due to CONTRACTOR.

17. INSURANCE

A. CONTRACTOR must maintain at its sole expense the following insurance, which will be full coverage not subject to self insurance provisions:

(1) Automobile Liability, including owned, non-owned and hired vehicles, with at least the following limits of liability:

(a) Primary Bodily Injury with limits of at least $500,000 per person, $1,000,000 per occurrence; and

(b) Primary Property Damage of at least $250,000 per occurrence; or

(c) Combined single limits of $1,000,000 per occurrence.

(2) General Liability including coverage for premises, products and completed operations, independent contractors, personal injury and contractual obligations with combined single limits of coverage of at least $2,000,000 per occurrence.

(3) Workers' Compensation with limits as required by the State of California and Employers Liability with limits of at least $1,000,000.

B. The insurance provided by CONTRACTOR will be primary and non-contributory.

C. The CITY of Torrance, the City Council and each member thereof, members of boards and commissions, every officer, agent, official, employee and volunteer must be named as additional insureds under the automobile and general liability policies.

D. CONTRACTOR must provide certificates of insurance and/or endorsements to the City Clerk of the City of Torrance before the commencement of work.

E. Each insurance policy required by this Paragraph must contain a provision that no termination, cancellation or change of coverage can be made without thirty days notice to the CITY.

F. CONTRACTOR must include all subcontractors as insured under its policies or must furnish separate certificates and endorsements for each subcontractor. All coverage for subcontractors will be subject to all of the requirements of this Paragraph 17.

18. SUFFICIENCY OF INSURERS

Insurance required by this Agreement will be satisfactory only if issued by companies admitted to do business in California, rated "B+" or better in the most recent edition of Best's Key Rating Guide, and only if they are of a financial category Class VII or better, unless these requirements are waived by the Risk Manager of the CITY ("Risk Manager") due to unique circumstances. In the event the Risk Manager determines that the work or services to be performed under this Agreement creates an increased or decreased risk of loss to the CITY, the CONTRACTOR agrees that the minimum limits of any insurance policies and/or the performance bond required by this Agreement may be changed accordingly upon receipt of written notice from the Risk Manager; provided that CONTRACTOR will have the right to appeal a determination of increased coverage by the Risk Manager to the City Council of the CITY within 10 days of receipt of notice from the Risk Manager.

19. CONFLICT OF INTEREST

A. No officer or employee of the CITY may have any financial interest, direct or indirect, in this Agreement, nor may any officer or employee participate in any decision relating to the Agreement that effects the officer or employee's financial interest or the financial interest of any corporation, partnership or association in which the officer or employee is, directly or indirectly interested, in violation of any law, rule or regulation.

B. No person may offer, give, or agree to give any officer or employee or former officer or employee, nor may any officer or employee solicit, demand, accept, or agree to accept from another person, a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, preparation or any part of a program requirement or a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing, or in any other advisory capacity in any way pertaining to any program requirement, contract or subcontract, or to any solicitation or proposal.

20. NOTICE

A. All notices, requests, demands, or other communications under this Agreement will be in writing. Notice will be sufficiently given for all purposes as follows:

(1) Personal delivery. When personally delivered to the recipient: notice is effective on delivery.

(2) First Class mail. When mailed first class to the last address of the recipient known to the party giving notice: notice is effective three mail delivery days after deposit in an United States Postal Service office or mailbox.

(3) Certified mail. When mailed certified mail, return receipt requested: notice is effective on receipt, if delivery is confirmed by a return receipt.

(4) Overnight delivery. When delivered by an overnight delivery service, charges prepaid or charged to the sender's account: notice is effective on delivery, if delivery is confirmed by the delivery service.

(5) Facsimile transmission. When sent by fax to the last fax number of the recipient known to the party giving notice: notice is effective on receipt. Any notice given by fax will be deemed received on the next business day if it is received after 5:00 p.m. (recipient's time) or on a non-business day.

Addresses for purpose of giving notice are as follows:

CONTRACTOR:	Company Name Address Address Fax
CITY:	City Clerk City of Torrance 3031 Torrance Boulevard Torrance, CA 90509-2970 Fax: (310) 618-2931

B. Any correctly addressed notice that is refused, unclaimed, or undeliverable because of an act or omission of the party to be notified, will be deemed effective as of the first date the notice was refused, unclaimed or deemed undeliverable by the postal authorities, messenger or overnight delivery service.

C. Either party may change its address or fax number by giving the other party notice of the change in any manner permitted by this Agreement.

21. PROHIBITION AGAINST ASSIGNMENT AND SUBCONTRACTING

This Agreement and all exhibits are binding on the heirs, successors, and assigns of the parties. The Agreement may not be assigned or subcontracted by either the CITY or CONTRACTOR without the prior written consent of the other.

22. INTEGRATION; AMENDMENT

This Agreement represents the entire understanding of the CITY and CONTRACTOR as to those matters contained in it. No prior oral or written understanding will be of any force or effect with respect to the terms of this Agreement. The Agreement may not be modified or altered except in writing signed by both parties.

23. INTERPRETATION

The terms of this Agreement should be construed in accordance with the meaning of the language used and should not be construed for or against either party by reason of the authorship of this Agreement or any other rule of construction that might otherwise apply.

24. SEVERABILITY

If any part of this Agreement is found to be in conflict with applicable laws, that part will be inoperative, null and void insofar as it is in conflict with any applicable laws, but the remainder of the Agreement will remain in full force and effect.

25. TIME OF ESSENCE

Time is of the essence in the performance of this Agreement.

26. GOVERNING LAW; JURISDICTION

This Agreement will be administered and interpreted under the laws of the State of California. Jurisdiction of any litigation arising from the Agreement will be in Los Angeles County, California.

27. COMPLIANCE WITH STATUTES AND REGULATIONS

CONTRACTOR will be knowledgeable of and will comply with all applicable federal, state, county and city statutes, rules, regulations, ordinances and orders.

28. WAIVER OF BREACH

No delay or omission in the exercise of any right or remedy by a nondefaulting party on any default will impair the right or remedy or be construed as a waiver. A party's consent or approval of any act by the other party requiring the party's consent or approval will not be deemed to waive or render unnecessary the other party's consent to or approval of any subsequent act. Any waiver by either party of any default must be in writing and will not be a waiver of any other default concerning the same or any other provision of this Agreement.

29. ATTORNEY'S FEES

Except as provided for in Paragraph 15, in any dispute, litigation, arbitration, or other proceeding by which one party either seeks to enforce its rights under this Agreement (whether in contract, tort or both) or seeks a declaration of any rights or obligations under this Agreement, the prevailing party will be awarded reasonable attorney's fees, together with any costs and expenses, to resolve the dispute and to enforce any judgment.

30. EXHIBITS

All exhibits identified in this Agreement are incorporated into the Agreement by this reference.

31. CONTRACTOR'S AUTHORITY TO EXECUTE

The persons executing this Agreement on behalf of the CONTRACTOR warrant that (i) the CONTRACTOR is duly organized and existing; (ii) they are duly authorized to execute this Agreement on behalf of the CONTRACTOR; (iii) by so executing this Agreement, the CONTRACTOR is formally bound to the provisions of this Agreement; and (iv) the entering into this Agreement does not violate any provision of any other Agreement to which the CONTRACTOR is bound.

CITY OF TORRANCE,
a Municipal Corporation

_____
Frank Scotto, Mayor

ATTEST:

_____
Sue Herbers, City Clerk

APPROVED AS TO FORM:

JOHN L. FELLOWS III
City Attorney

By: _____

Company Name
Type of Entity

By: _____
Name
Title

Attachments: Exhibit A: Bid

EXHIBIT A

Bid

[To be attached]

PART F

ABATEMENT SPECIFICATIONS

Lead-Based Ceramic tile Abatement and Cleanup Guidelines

These guidelines were prepared and designed by Ellis Environmental Management for the express and sole use of the City of Torrance for the following project:

Human Resources Building Renovation Project

A. Scope:

1. Lead-related work under this contract includes the following:

    a. Restroom walls: See attached Demolition Plan. All ceramic wall tiles in all restrooms are lead-based.

2. The contractor shall provide all labor, materials, tools, equipment, services, testing supervision and incidentals necessary to perform lead-related work under this contract and in accordance with the following sections. Following removal, an independent testing agency will perform clearance testing in accordance with the procedures outlined below.

B. General Requirements:

All workers who perform lead-related work shall be currently certified by the Lead Accreditation and Certification Unit, California Department of Health Services.

C. Insurance:

See Owner's General Conditions.

D. Submittals:

On April 22, 2008, EPA issued the Renovation, Repair and Painting Rule, requiring that firms performing renovation, repair, and painting projects that disturb lead-based paint in pre-1978 homes, child care facilities and schools be certified by EPA and that they use certified renovators who are trained by EPA-approved training providers to follow lead-safe work practices.

Recognizing that (a) worker requirements under California Title 8 Section 1532 .1 are more stringent than the EPA's RRP program, and (b) that engineering controls, worker protection and training requirements for asbestos and lead abatement projects are similar (and often overlap), the following minimum licensure, training and record-keeping requirements will be required for this project:

1. Proof of registration as a licensed asbestos removal contractor by the Department of Industrial Relations. (CSLB #)

2. Proof of contractor and supervisor certification under the EPA's RRP program.

3. For all workers engaged in lead abatement activities, Contractor shall be able to provide blood lead level (BLL) records over the past six months, and/or extending backward to that employee's hire date.

4. Statement that a current written respiratory protection plan is in place and available for review.

5. For all workers assigned to the project, a copy of their (a) current fit test for PAPR and APR respirators, (b) medical clearance to wear a respirator, and (c) current certificate of lead worker training complying with California lead worker training requirements.

6. Notification to CDPH Form 8551, 5 days prior to work.

E. Schedule:

Work shall be commenced on the date stipulated in the Client's Notice to Proceed.

F. Removal Sections

Section 1.0 Protection of Occupants

1.1 Insure that the interior of the work area remains unoccupied throughout the lead abatement project. Post appropriate notices at all containment entrances. Install poly at all windows, doors, supply ducts and other potential air entries to the building interior. Notify Ellis and call for inspection of engineering controls prior to beginning removal. Do not allow re-occupancy until after successful clearance sampling has been documented inside the structure. All wipe samples collected inside the work area must be less than 40 ug/s.f. prior to removal of engineering controls.

Section 2.0 Site Preparation

2.1 Post flagging or rope around the work area with signs reading, "CAUTION. LEAD HAZARD. DO NOT ENTER THIS WORK AREA UNLESS AUTHORIZED." At the entrance to the work area, post the phone numbers of the designated emergency coordinator (usually the Client's representative), a copy of all required notifications, and the location of emergency equipment such as fire extinguishers.

2.2 Correct any conditions that may impede work. Remove or protect all items which must remain in the work area. Identify sources for water and electrical power.

Notify Client's representative if power sources within the building will not be sufficient.

2.3 Install fire-resistant polyethylene sheeting at all work area penetrations. Install regulated area with caution tape and hazardous warning tape. Place 2-stage (min) decontamination unit at work area entrance.

2.4 [reserved]

2.5 Seal any floor penetrations and/or seams where water or debris may enter into drains.

2.6 Install a cleaning chamber for workers, to include a walk off pan, water, towels, etc. Dispose of contaminated work suits and other materials as lead waste. Arrange cleaning chamber and visual barriers to prohibit workers being seen in public wearing respirators or other personal protective equipment.

2.7 Sandblasting or other mechanical removal methods will require prior written authorization by Owner or Owner's representative. Where approved, install full containment consisting of 2 layers of poly sheeting on non-abated surfaces, a 3-stage decon unit, negative air enclosure, etc. Call for inspection. Provide a means of wetting and misting the work area in areas where sandblasting is required. Generally, this will require an electric airless sprayer located in the work area with 25-50' reinforced hoses and a mister gun. Submit any alternative for approval.

2.8 Protect adjacent surfaces not scheduled for stabilization with fire-resistant polyethylene sheeting or other temporary cover.

2.9 Provide sufficient drums to (a) store generated ceramic tile debris and blasting media, and (b) store filtered water prior to testing and disposal. Do not allow protective clothing and respirators to be worn outside of the regulated area.

2.10 [reserved]

Section 3.0 Waste Storage and Transport

Coordinate with the Client for safe storage of waste on-site in sealed drums prior to disposal. Provide a staged filtering system sufficient to bring all water generated during stabilization into state and local wastewater compliance (5 ppm). Provide certified test results prior to disposal. Store water on site in drums or approved tank until results are received.

Contactor will need to contract for the transport of generated hazardous (dry) waste. Contractor is responsible to restrict access to storage areas by use of locks and fencing as necessary. Provide and install appropriate labels on the exterior of all waste drums. Separate hazardous from non-hazardous waste (if any).

Do not mix hazardous and non-hazardous wastes. Do not mix several different hazardous wastes. Avoid spills or leaks, since cleanup materials and tools must then also be considered hazardous.

When containers, such as drums, must be stored outside an approved dumpster, mark each container clearly; include the contents and the date the waste was generated. Such temporary storage shall be as a last resort, in a positively secured area, and only with approval of the Client.

Section 4.0 Maintenance of Regulated Area

Maintain the integrity of all poly sheeting, signs and visual barriers throughout the work period, regardless of work activities. Inspect the work area at least twice daily. Replace damaged materials immediately.

Section 5.0 Control of the Work Area

5.1 At all times, control access to sandblasting work area only to the Contractor's work force, authorized Client's representatives and authorized federal, state and local authorities. For each person entering the work area, require and record identification and sign-in prior to entrance.

5.2 Avoid dispersion of dust by requiring disposable foot booties within the work area. Maintain an ongoing cleaning program at all times work is in progress, to include (1) immediate bagging of all debris (2) maintenance of the worker decontamination system, and (3) wet-wiping of interior containment barriers. Provide for regular cleaning of all tools, equipment, and worker protection gear.

Section 6.0 Encapsulation

Encapsulate abated, stripped and/or stabilized surfaces with an approved encapsulant. Check with owner/ general contractor to insure compatibility with subsequent surface coatings.

Section 7.0 Chemical Removal Methods

7.0.1 [reserved]
7.0.2 [reserved]
7.0.3 Provide MSD information for any chemicals employed. Contractor assumes full responsibility for using the product according to manufacturer's recommendations and warranty.

Section 8.0 Mechanical and Water Removal Methods

8.1 Do not use abrasive disk sanders as a removal method; a HEPA sander may be used with prior approval. The potential for production of lead dust increases when the sanding disk is wider than the surface being abated. For all areas where abrasive sanding is required, provide HEPA ventilation at the source of removal.

8.2 When using sandblasting equipment, provide proof of compliance with ASME, OSHA, and all codes that govern the removal and handling of hazardous materials.

8.3 [reserved]

8.4 When removing ceramic tile from substrate, take care not to damage the substrate during scraping or sanding operations.

8.5 Sand, feather and/or smooth stabilized surfaces to allow for installation of new materials. Coordinate required finished surface with general contractor.

8.6 Protect adjacent surfaces from damage during work.

Section 9.0 Daily Cleanup

Sweep up and collect small debris only after the affected surfaces have been sprayed with a fine mist of water, to keep surface dust from becoming airborne and potentially contaminating other areas of the property and abatement workers. Dry sweeping is prohibited. Drum as lead-contaminated waste.

Section 10.0 Final Cleanup

10.1 At the conclusion of the abatement process, clean all accessible surfaces in the work area with a HEPA-filtered vacuum and/or wet wiping techniques. Start at the highest accessible point and work down. Provide sufficient time within the abatement process to perform this cleanup step thoroughly.

10.2 Use detergent as part of the cleanup process only with prior approval and only in conjunction with HEPA vacuuming techniques. Do not use high-phosphate detergents. Follow manufacturer's directions.

10.3 Supply an adequate supply of wringer buckets, mops, squeegee sponge mops, variously sized hand sponges, and rags.

10.4 Change the cleaning mixture frequently.

10.5 Following successful clearance sampling (see below), plastic sheeting covering floors and walls shall be sprayed, lifted and HEPA vacuumed prior to removal. Carefully fold sheeting from corners and ends toward the middle and place into 6-mil bags; seal. Store in designated storage areas.

Section 11.0 Visual Inspections

Call for a visual inspection of all affected areas following the preliminary cleanup. If the results of the visual inspection are unsatisfactory, re-clean affected surfaces in accordance with the inspector's instructions until satisfactory results are achieved.

Section 12.0 Clearance Testing

Following successful initial and final visual inspections, surface dust sampling will be conducted by the Client's representative, using EPA approved wipes moistened with a non-alcohol wetting agent. Samples will be collected from non-lead surfaces adjacent to abated surfaces both inside and outside the work area, and/or as deemed appropriate by Owner's representative. Results shall be less than 40 ug/sf. If >40 ug/sf, repeat cleaning process and call for new inspection until passing results are achieved.

Section 13.0 Waste Evaluation

13.1 Contractor, at his/her option, may perform a small test removal as the initial step of the abatement process. Evaluate the waste from this test removal to ensure effective planning for proper waste storage and disposal.

13.2 Avoid mixing hazardous and non-hazardous wastes. Separate each waste category into one of the following:

Lead ceramic tile.
Non-lead containing debris (decontaminated plastic sheeting, tape, etc.)
Other construction waste.

Section 14.0 Generator Status/EPA Generator Number

Coordinate procurement of appropriate EPA generator numbers with the Client's representative after performing an accurate profile and categorization of generated waste.

Section 15.0 Worker Protection

15.1 All workers shall have successfully completed training in Lead Abatement Health and Safety Training. The Contractor shall additionally adhere to all worker training requirements listed in 29CFR 1532.1.

15.2 All workers shall be provided with baseline and post stabilization blood lead level screens determined by the whole blood lead method utilizing Vena-Puncture technique. In addition, the Contractor shall have a physical performed on each employee. Workers shall be removed from the work area if his or her blood lead level is 50 ug/dl or greater. Submit results of medical surveillance to the Client's representative prior to final payment.

15.3 Provide approved respirators for all workers, foremen, superintendents and authorized visitors. Provide a sufficient number of replacement filters.

15.4 Refer to CFR29 1532.1 (e) Table 1 - Respiratory Protection for Lead Aerosols. Provide minimum respiratory protection as indicated.

15.5 Workers shall wear full body disposable suits with hoods and booties. A TYVEK or similar type of suit may be worn. Suits will be worn inside the work area after the area passes pre-stabilization inspection and shall remain in use until the area passes final clearance.

15.6 Goggles with side shields will be worn when working with a material that may splash or fragment, or if protective eye wear is specified on an MSDS sheet.

15.7 Additional respiratory protection by supplemental filters, such as organic vapor cartridges, may be required when handling some products. Consult the appropriate MSDS sheet and obtain proper filters as necessary.

15.8 Do not eat, drink or smoke in the work area.

15.9 Ensure that each worker thoroughly washes and decontaminates prior to leaving the work area. Provide wash facilities to include running potable water, towels, and a HEPA vacuum. Upon leaving the work area, each worker will remove and dispose of work suit wash and dry face and hands, and vacuum.

15.10 Don disposable clothing prior to entering work area. Provide a clean room to put on suits and other personal protective equipment. Use disposable clothing only once.

15.11 Provide portable restrooms at a location designated by Client. Clean daily.

ASBESTOS REMOVAL WORK PLAN

PART 1 - GENERAL

1.1 PROJECT SITE

A. The project is identified as:

Pre-Renovation Abatement
City of Torrance
Human Resources Building
3231 Torrance Boulevard

located in Torrance, California.

1.2 SCOPE OF WORK

Field-verify all dimensions; do not scale from drawings.

a. Wallboard: See Interior Demolition Plan Keynotes 5, 11-13, 15, 20 et al. Where interior walls are gypsum/joint compound (see attached drawing) , remove wallboard to a clean and straight line marked by general contractor. Encapsulate edges, clean underlying studs and base plate. 2% asbestos in joint compound. OSHA Class 1 abatement. Profile waste, dispose of as asbestos if >1%. Generally, this is a "contractor assist" effort, in which the abatement contractor will erect containment and demolish wallboard as directed by the Contractor.

b. Exterior stucco: ACCM (< 1%) See Interior Demolition Plan Keynote 16. Remove plaster/stucco to studs as directed by general contractor. Encapsulate edges, clean underlying studs and base plate.

c. Flooring: See Demolition Note 2. All flooring (except carpet) and mastic are asbestos-containing. If carpet adheres to tile, remove as asbestos waste. Remove all flooring in all areas to a clean concrete substrate. If mechanical means (buffer machine) are used, the work is OSHA Class 1 abatement, friable asbestos waste. If hand methods are used, Class 2 abatement, profile waste and provide solvent MSDS information to accepting landfill. Assume multiple layers (e.g., 9" tile under 12" tile under carpet). Provide substrate that has been cleaned and is free of mastic residue.

d. Ceramic Tile (LEAD): Remove ceramic wall tile as shown on demolition plan and as identified by general contractor, pursuant to Title 8 1532.1. Profile drummed waste for lead content.

e. Light Ballasts: Remove light ballasts from all fluorescent fixtures in

impacted areas and as identified by general contractor. Separate those ballasts marked "No PCBs" from unmarked ballasts. Drum, transport and dispose of PCB Ballasts as hazardous waste. Provide proof of notification and acceptance by disposal facility.

f. Roofing: Roofing felts (parapet only) and roof penetration mastics are asbestos-containing. Main roofing field is non-asbestos. Coordinate any roof penetrations or removal with general contractor.

A. All work shall be supervised by experienced persons trained, knowledgeable and qualified in the techniques of asbestos abatement, handling and disposal of asbestos containing, and asbestos contaminated, materials and the subsequent cleaning of contaminated areas.

B. Contractor shall furnish all labor, materials, services, insurance (specifically covering the handling and transportation of asbestos material), and equipment which is specified, shown or reasonably implied for the removal, transport, and disposal of asbestos-containing materials. Field-verify all quantities and substrate conditions. Do not scale drawings.

C. The Work also includes removal, transport, and disposal of the following materials.

1. All materials used for work area preparation.
2. All discarded personnel protective equipment.
3. All materials contaminated by asbestos either before or during the work of this project.
4. **Removal proper disposal of light tubes and light ballasts.**
5. Removal and proper disposal of lead ceramic wall tile.

D. Other items of work may include attendant demolition activities required to access asbestos materials.

E Replacement of asbestos containing materials is not part of this Contract.

F. Furnishings, cabinets, moveable objects, and equipment temporarily removed to gain access to asbestos containing materials shall be cleaned and stored at an Owner-designated location.

G. Damages caused during the performance of abatement activities (not including incidental tape damage) shall be repaired by Contractor at no expense to Owner.

1.3 WORK TO BE PERFORMED BY OTHERS

A. Although no other contract work will be performed during abatement, the Contractor will be expected to provide access to the Owner and other trades as required during setup and cleaning activities in all work areas not under abatement.

1.4 RESPONSIBILITIES OF THE OWNER

A. As required by California Business and Professionals Code 7187, the Owner will provide for independent oversight and clearance air monitoring
of the asbestos removal.

B. The Owner will provide existing water, at no cost to the Contractor, for construction purposes.

C. The Owner will provide existing electrical power, at no cost to the Contractor, for construction purposes. Contractor shall provide spider box and "pigtails" - Owner's electrician will make connection to panel.

1.5 REQUIRED LICENSURE

A. Contractor shall be licensed by the State of California, Contractors State License Board and be registered to perform asbestos related work with the Division of Occupational Safety and Health, Department of Industrial Relations. At a minimum contractor shall hold the following license classifications:

1. ASB- Asbestos Certification.
2. Class B Contractor (B&P Code Div. 3 Ch. 9 ' 7000).
3. Hazardous Waste Contractor (PCB - HAZWOPER)

B. Transportation of Friable and Non-Friable Asbestos Containing Materials: Contractor shall itself be or have a subcontractor who is a registered hazardous waste transporter with the State of California.

C. Subcontractors shall hold all licenses applicable to specified trade work. Provide a list of any subcontractors anticipated for this project.

1.6 PERMITS

A. Provide applications to city governments, local fire department and other regulatory agencies as required.

1.7 NOTIFICATIONS

A. Contractor shall make all required written notification to regulatory agencies including the following:

1. California Division of Occupational Safety and Health
2. South Coast Air Quality Management District
3. City Fire Department

1.8 INSURANCE REQUIREMENTS

[see Contract]

1.9 BONDING REQUIREMENTS

[see Contract]

1.10 PROJECT SCHEDULE

A. Hours of Work: [see Contract]

B. The Contractor shall start work and complete work on dates to be confirmed by the Owner:

C. For the purpose of this Work Plan, the "submittal due date" shall mean the day on which submittals required by Article 1.12 shall be received by the Project Owner's Representative. "Start Work" shall mean the day Contractor arrives on the project site, and "completion date" shall mean the day Contractor leaves the project site, including final clearance testing and demobilization.

1.11 PROCEDURES

A. Contractor shall perform all Work in compliance with the most recent edition of all applicable federal, state, and local regulations, standards and codes governing asbestos abatement, transport, and disposal of asbestos containing/contaminated materials.

1. Requirements include obtaining permits, licenses, inspections, releases and similar documentation, as well as payments, statements and similar requirements associated with codes, regulations, and standards.

B. Regulations, Standards and Codes (General):

1. General applicability of federal, state, and local regulations, standards and codes governing asbestos abatement, transport, and disposal, except to the extent that more explicit or more stringent requirements are written directly into the contract documents, all applicable regulations, standards, and codes have the same force and effect and are made a part of the contract documents as if copied directly into the contract documents, or as if published copies are bound herewith.

C. Contractor Responsibility: The Contractor shall assume full responsibility and liability for the compliance with all applicable federal, state, and local regulations pertaining to work practices, transport, disposal, and protection of workers, visitors to the site, and persons occupying areas adjacent to the site. The contractor is responsible for providing training, medical examinations and maintaining training/medical records of personnel as required by the applicable federal, state, and local regulations. The Contractor shall hold the Owner and Project Owner's Representative harmless for failure to comply with any applicable asbestos abatement, transport, disposal, safety, health or other regulation on the part of himself, his employees, or his subcontractors.

1.12 SUBMITTALS

A. Prior to commencement of work, Contractor shall submit (two copies) to Project Owner's Representative documentation that includes, without limitation, the following:

1. Submit copies of licenses and registrations required by Article 1.5 Required Licensure (include copies of subcontractors licenses).

2. Submit copies of written notification to the following regulatory agencies:

a. California Division of Occupational Safety and Health
b. South Coast Air Quality Management District. Provide copies of renotification.
c. Local Fire Department

3. Submit proof of insurance coverage required by Article 1.8 Insurance Requirements and/or main Contract (include proof of insurance for subcontractors).

4. AQMD certification for HEPA-filtered equipment.

5. Submit a construction schedule indicating milestones and dates of completion for each phase of the Work.

6. Submit documentation that Contractor's employees, including foreman, supervisor, and any other company personnel or agents who may be exposed to airborne asbestos fibers or who may be responsible for any aspects of abatement activities, have received training as required by CFR 1926.1101. For workers who will be dismantling light fixtures, removing and transporting potential PCB ballasts, provide copies of 40 hr. HAZWOPER training.

7. Submit documentation from Physician that all employees or agents who may be exposed to airborne asbestos fibers in excess of background levels have received medical monitoring to determine whether they are physically capable of working while wearing the respirator required without suffering adverse health effects. The Contractor must be aware and provide information to the examining physician about unusual conditions in the workplace environment (e.g. high temperatures, humidity, chemical contaminants) that may impact on the employee's ability to perform work activities.

8. Submit documentation of respirator fit-testing for all Contractor employees and agents who must enter the work area. This fit testing shall be in accordance with qualitative procedures as required by OSHA regulations or be quantative in nature.

B. During abatement activities, Contractor shall submit to Project Owner's Representative documentation that includes the following:

1. Submit copies of the work area entry/exit logbook. Logbook must record name, affiliation, time in, and time out for each entry into the work area.

2. Submit copies of logs documenting filter changes on respirators, HEPA vacuums, differential pressure air filtration devices, water filtration device, and other engineering controls.

3. Submit copies of Material Safety Data Sheets (MSDS) for solvents, encapsulants, wetting agents and replacement materials, as necessary.

4. Submit results of all required OSHA air monitoring. Results shall be available prior to the start of the following shift and within 24-hours of completion of the last shift.

5. Submit copies of all accident/incident reports where injury or damage has occurred on or to the Owner's property.

6. Submit copies of all signed transport manifests, trip tickets and disposal receipts for all hazardous waste materials (asbestos, lead and PCBs) removed from the work area within 24 hours of the transport. Send to:

   The City of Torrance
   Attn. Ms. Diane Megerdichian
   3231 Torrance Boulevard
   Torrance, CA

1.13 NOTICES

A. Post in the clean room area of the worker decontamination enclosure a list containing the names, and telephone numbers of Owner's Representative(s) and Contractor.

B. Post in the clean room area of the worker decontamination enclosure a list of all persons authorized to enter the work area.

C. Additional postings shall include:

   1. Visitor Entry and Exit Log.
   2. Employee Daily Sign in Log.
   3. Entry and Exit Procedures.
   4. Emergency Procedures.

1.14 SITE USE AND SECURITY

A. Confine operations at the site to the areas permitted under the Contract. Portions of the site beyond which work is indicated are not to be disturbed.

B. The work area shall be restricted only as authorized, trained and protected personnel, including Contractor, Contractor's employees, Owner employees, Building Management, and Project Owner's Representative, State and Local inspectors.

C. Entry into the work area by unauthorized individuals shall be reported immediately to the Project Owner's Representative.

D. Contractor shall be responsible for Project site security during abatement operations in order to protect work efforts and equipment.

1.15 EMERGENCY PLANNING

A. Emergency planning and procedures shall be developed by Contractor prior to abatement initiation.

B. Emergency procedures shall be in written form and prominently posted. Contractor shall ensure that all persons entering the work area read these procedures and understand the Project site layout, location of emergency exits and emergency procedures.

C. Emergency planning shall include considerations of fire, explosion, electrical hazards, slips, trips and falls, confined spaces, and heat related injury. Written procedures shall be developed and employee training in procedures shall be provided by Contractor.

D. Employees shall be trained in evacuation procedures in the event of work place emergencies.

1. For non-life-threatening situations, employees injured or otherwise incapacitated shall decontaminate following normal procedures with assistance from fellow workers, if necessary, before exiting the work place to obtain proper medical treatment.

2. For life-threatening injury or illness, worker decontamination shall take least priority. After measures to stabilize the injured worker, remove him from the work place and secure proper medical treatment.

3. Telephone numbers of all emergency response personnel shall be prominently posted in the clean and equipment rooms.

1.16 FIRE PROTECTION

A. All plastic, spray-on strippable coatings, and structural materials used in the asbestos abatement process shall be UL approved and certified as fire retardant or noncombustible.

B. Wood shall be pressure impregnable and certified as fire retardant.

C. Material Safety Data Sheets (MSDS) for fire retardant materials shall be made available upon request.

D. All combustible rubbish and debris, including properly bagged asbestos shall be properly disposed of at the end of each working day.

E. A minimum of one (1) 4A/60BC dry-chemical extinguisher shall be maintained at each of the following locations:

1. At each corner of the work area. Where no clear corners exist, four (4) extinguishers shall be placed around the exterior wall of the work area so that they are approximately 25 percent of the total distance apart.

    a. Exception: Where the total abatement containment area is less than 1,000 square feet, two (2) 4A/60BC extinguishers shall be provided. All extinguishers shall be clearly identified with red tape.

2. Contractor shall ensure that on site personnel are aware of the location and proper use of all extinguishers and other fire/life safety equipment.

F. All existing fire detection, alarm systems, connections and standpipes shall remain in place, active and unobstructed. Any alteration to this equipment must be approved by Project Owner's Representative.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Contractor shall carefully adhere to the following:

1. All plastic, spray-on strippable coatings and structural materials used shall be UL certified as fire retardant or non-combustible.

2. Deliver all materials in the original packages, containers, or bundles bearing the name of the manufacturer and brand name (where applicable).

3. Polyethylene sheeting utilized for worker decontamination and barriers shall be a minimum of 6 mil. thick.

4. Disposal bags shall be of 6-mil. polyethylene, pre-printed with labels as required by EPA regulation 40 CFR 61.152 (b) (I) (iv) or applicable CAL-OSHA requirements.

5. Stick-on labels as per EPA or CAL-OSHA requirements for disposal drums.

6. Warning signs as required by CAL-OSHA shall be utilized.

B. Removal and Encapsulation

1. Surfactant (wetting agent) shall be a 50/50 mixture of polyoxyethylene ether and polyoxyethylene ester, or equivalent, mixed in proportion of 1 fluid ounce to 5 gallons.

2. The encapsulating agent to be applied shall adhere to the substrate surfaces from which asbestos-containing material has been stripped.

3. The encapsulating agent shall not be flammable and should not be solvent-based or utilize a vehicle (the liquid in which the solid parts of the encapsulant are suspended) consisting of hydrocarbon.

C. Replacement:

1. Submit manufacturers certification indicating that replacement materials (if used) do not contain asbestos.

2.2 EQUIPMENT

A. General:

1. A sufficient quantity of HEPA vacuums and/or differential pressure air filtration devices equipped with HEPA filtration and operated in accordance with ANSI Z9.2-79 (local exhaust ventilation requirements) and EPA guidance document EPA 560/5-

83-002 Guidance for Controlling Friable Asbestos Containing Materials in Buildings. To calculate total air flow requirement:

$$\text{Total ft3/min} = \frac{\text{Vol. of work area (in ft3)}}{15 \text{ min}}$$

To calculate the number of units needed for the abatement:

$$\text{Number of units needed} = \frac{\text{[total ft3/min]}}{\text{[capacity of unit in ft3/min]}}$$

2. Type AB" powered air purifying respirators (PAPR) at minimum shall be utilized during removal of any friable asbestos containing material.

3. Air purifying respirators with dual HEPA/organic cartridges shall be utilized during floor tile and associated mastic removal.

4. Respirators shall be furnished to the abatement workers by Contractor. The respirators shall have been tested and approved by National Institute of Occupational Safety and Health (NIOSH) for use in asbestos contaminated atmospheres.

5. Full body disposable protective clothing, including head, body, and foot coverings shall be furnished to visitors in sizes adequate to accommodate movement without tearing.

6. Additional safety equipment (e.g. hard hats meeting the requirements of ANSI Standard Z89.1-1981, eye protection meeting the requirements of ANSI Standard Z87.1-1979, safety shoes meeting the requirements of ANSI Standard Z41.1-1967, disposable gloves), as necessary, shall be furnished to all workers and authorized visitors.

7. Non-skid foot wear shall be furnished to all abatement workers. Disposable clothing shall be adequately sealed to the footwear to prevent body contamination.

8. Furnish a sufficient supply of disposable mops, rags, and sponges for work area decontamination.

B. Removal:

1. A sufficient supply of scaffolds, ladders, lifts and hand tools (e.g. scrapers, wire cutters, brushes, utility knives, wire saws, etc.) Shall be furnished as needed.

2. Rubber dustpans and rubber squeegees shall be furnished for cleanup.

3. Brushes utilized for removing loose asbestos containing material shall have nylon or fiber bristles, not metal.

4. A sufficient supply of HEPA filtered vacuum systems shall be furnished during cleanup.

C. Encapsulation: Encapsulants shall be sprayed using airless spray equipment or hand pressurized sprayer.

D. Enclosure: Hand tools equipped with HEPA filtered local exhaust ventilation shall be utilized during the installation of enclosures and supports if there is any need to disturb asbestos containing materials during this process. As an alternative asbestos material may be partially removed following controlled removal procedures approved by the Project Owner's Representative.

PART 3 - EXECUTION

3.1 FLOOR TILE & MASTIC REMOVAL PROCEDURES

A. Asbestos Containing Floor Tile and Associated Mastic: The following procedure may be used as an alternate to full containment in areas where asbestos containing floor tile and associated mastic will be removed independent of friable asbestos containing materials.

B. Post warning signs meeting the specifications of CAL/OSHA General Industry Safety Order Section 520B and 29 CFR 1926.1101 at any location and approaches to a location where airborne concentration of asbestos fibers may exceed ambient background levels. Signs shall be posted at a distance sufficiently far enough away from a work area to permit a person to read the sign and take necessary protective measures to avoid exposure.

C. Install worker decontamination unit described in Article 3.5 or as agreed upon with Project Owner's Representative.

D. Asbestos handlers shall don personal protective equipment as required by Material Safety Data Sheet (MSDS) and Article 2.2 - Equipment.

E. Isolate work area by installing critical barriers or curtained doorways across all openings where airborne asbestos fiber migration may cause secondary asbestos contamination.

F. Walls within the work area shall be protected with a minimum of one (1) layer of 4 mil polyethylene sheeting extending a minimum of eight (8) feet above the floor.

G. Plastic shall be sized to minimize seams. Seams shall be staggered and separated by a distance of at least six feet.

H. Wall sheeting shall be secured adequately to prevent it from falling. This may require additional support/attachment when differential pressure filtration devices are utilized.

I. Seal all floor penetrations.

J. Establish localized negative pressure differential isolation and air circulation in the work area.

K. The Contractor shall carry out all asbestos floor tile removal and associated mastic removal in a manner that will minimize pulverizing, breaking or abrading of tiles, adhesive or felt backing (if present).

L. The Contractor shall saturate floor with amended water or removal encapsulant so that entire surface is wet. Do not allow amended water or removal encapsulant to puddle or run off to other areas. If a removal encapsulant is used, use in strict accordance with the manufacturers instructions. Keep floor continuously wet through removal operations.

M. Manually remove tile/flooring in full pieces if possible. Pry tiles/flooring from substrate with hand tools. Do no use electric or propane-powered chipping equipment. If visible dust is produced at any time, immediately stop work and mist area with amended water.

N. Clean concrete floor of all adhesive residue by wet mopping with "BEAN-e-doo", no-odor mastic remover. (No exceptions without prior approval.)

When removing mastic, remove all dimensional material (material capable of being lifted with a small pocketknife).

O. After confirming compatibility with proposed new flooring materials, encapsulate cleaned floor with one coat of bridging type encapsulant. Clean the floor of all standing water and/or encapsulant prior to clearance monitoring.

P. Dispose of all asbestos containing/contaminated waste in accordance with Article 3.6 - Disposal Procedures.

3.2 WALLS AND CEILINGS

A. Class 1 Abatement as described by federal OSHA 1926.1101.

B. Post warning signs meeting the specifications of CAL/OSHA General Industry Safety Order Section 520B and 29 CFR 1926.1101 at any location and approaches to a location where airborne concentration of asbestos fibers may exceed ambient background levels. Signs shall be posted at a distance far enough away from a work area to permit a person to read the sign and take necessary protective measures to avoid exposure.

C. Install worker decontamination unit described in Article 3.5 or as agreed upon with Project Owner's Representative.

D. Asbestos handlers shall don personal protective equipment as required by Material Safety Data Sheet (MSDS) and Article 2.2 - Equipment.

E. Isolate work area by installing critical barriers or curtained doorways across all openings where airborne asbestos fiber migration may cause secondary asbestos contamination.

F. Walls within the work area that are specified to remain shall be protected with a minimum of one (1) layer of 4 mil polyethylene sheeting floor to ceiling, and one layer of 6-mil poly sheeting, also extending floor to ceiling. Install floor sheeting to entirely cover floor, in sufficient layers and of sufficient size and thickness to prevent water or other damage to underlying surfaces. Bring floor poly up walls behind wall sheeting a minimum of 6" at all locations.

G. Plastic shall be sized to minimize seams. Seams shall be staggered and separated by a distance of at least six feet.

H. Wall sheeting shall be secured adequately to prevent it from falling. This may require additional support/attachment when differential pressure filtration devices are utilized.

I. Seal all floor penetrations prior to installation of floor sheeting.

J. Establish localized negative pressure differential isolation and air circulation in the work area.

K. Remove walls and ceilings using appropriate wet methods and respiratory protection. Maintain 0.02 in. pressure differential throughout.

L. Saturate materials with amended water to the extent possible; this may require a soaking period. Remove material to wood substrate. Protect electrical wiring and conduit in place. Do not allow amended water to puddle or run off to other areas. Keep floor clean during removal. Bag all waste immediately.

M. Do not use electric or propane-powered chipping equipment without prior approval. If visible dust is produced at any time, immediately stop work and mist area with amended water.

N. Clean remaining surfaces with wet wiping techniques. Following inspection and approval, apply a light mist of encapsulant to cleaned surfaces.

O. Prior to final cleaning and encapsulation, the innermost layer of poly sheeting (floors and walls) may be removed. Inspect remaining layers for damage.

P. Dispose of all asbestos containing/contaminated material as friable asbestos waste.

3.4 CLEAN-UP PROCEDURES

A. Remove and containerize all visible accumulations of asbestos-containing material and asbestos contaminated debris using rubber dust pans and rubber squeegees to move material. Do not use metal shovels to pick up or move accumulated waste. Asbestos containing/contaminated waste shall be placed in disposal bags. Disposal bags shall be doubled 6-mil polyethylene, pre-printed with labels as required by EPA regulation 40 CFR 61.152 (b) (I) (iv), Cal-OSHA Title 8 CCR Section 5208, and if applicable Title 22 CCR Section 66504.

B. Wet clean all surfaces in the work area using rags, mops and sponges as appropriate.

C. Remove the cleaned layer of plastic sheeting from walls. Windows, doors, HVAC system vents and all other openings shall remain sealed. The differential pressure air filtration devices shall remain in continuous operation. Decontamination enclosure systems shall remain in place and be utilized.

D. After cleaning the work area, provide a period of time to allow fibers to settle, then perform additional HEPA vacuuming and wet cleaning of all objects and surfaces in the work area.

E. Remove all containerized waste from the work area and waste container pass-out airlock.

F. Decontaminate all tools and equipment and remove at the appropriate time in the cleaning sequence.

G. Project Owner's Representative will inspect the work area for visible residue. If any accumulation of residue is observed, it will be assumed to be asbestos and a second settling period and cleaning cycle repeated at no additional cost to Owner.

H. Following the satisfactory completion of clearance air monitoring, the remaining barriers may be removed and prepared for proper disposal. A final visual inspection by Project Owner's Representative will be performed. Unsatisfactory conditions may require additional cleaning and air monitoring at no additional cost to Owner.

3.5 WORKER DECONTAMINATION SYSTEMS

A. Worker decontamination enclosure systems shall be provided at all locations where workers will enter or exit the work area to remove friable asbestos materials.
As a minimum, install one system at each location where friable materials will be removed.

B. Worker decontamination enclosure systems constructed at the project site shall utilize opaque 6-mil. Polyethylene sheeting or other approved materials for privacy.

C. The personnel decontamination unity shall not be located inside the work area unless otherwise authorized by Consultant.

D. Alternate methods of providing decontamination facilities may be submitted to Consultant for approval. Do not proceed with any such method(s) without written authorization.

E. The worker decontamination enclosure system shall consist of at least a clean room, a shower room, and an equipment room, each separated from the other and from the work area by air locks.

F. Clean rooms shall be sized to adequately accommodate the work crew. Space for storing respirators shall be provided in this area. Clean work clothes, clean disposable clothing, replacement filters for respirators, towels and other necessary items shall be provided in adequate supply at the clean room. A location for posting notices shall also be provided in the area.

3.6 DISPOSAL PROCEDURES

A. All asbestos containing ceiling materials and other asbestos-containing or contaminated debris which has become friable (able to be crushed or pulverized with hand pressure) shall be disposed of as friable asbestos-containing waste. All flooring, ceiling tile mastic and associated debris still in a non-friable state shall be disposed of as Class I nonfriable asbestos waste. All asbestos waste shall be placed and stored in sealed, locked and labeled containers and transported to an appropriate landfill as approved by the Owner for disposal.

B. All friable and non-friable ACM/PACM shall be transported by a certified waste hauler as approved by Owner (see submittal section).

C. **All manifests (hazardous and non-hazardous) must be signed by an Owner representative. Provide at least 24 hours notice prior to anticipated waste pick-up and transportation.**

D. All asbestos waste manifests or non-hazardous material data forms shall be delivered to the Consultant. Record keeping format shall be delivered to the Consultant. Record keeping format shall utilize a chain of custody form which includes the names and addresses of the Generator (Owner), Contractor, Waste Hauler, pickup site, disposal site, estimated quantity of asbestos waste and the type of containers used. The form shall be signed by the Generator, Contractor, waste hauler and the disposal site operator as the responsibility for the material changes hands.

3.7 REESTABLISHMENT OF THE WORK AREA

A. Reestablishment of the work area shall only occur following the completion of cleanup procedures and after clearance air monitoring has been performed and documented to the satisfaction of Consultant.

B. Contractor and Consultant shall visually inspect the work area for any remaining visible residue. Evidence of contamination will necessitate additional cleaning and air monitoring at no additional cost to Owner.

C. Upon approval by Consultant, the Contractor shall remove remaining poly sheeting, critical barriers, and decontamination unit.

3.8 ALTERNATIVE PROCEDURES

A. If specified procedures cannot be utilized, a request shall be made in writing to Consultant providing details of the problem encountered and recommended alternatives.

B. Alternative procedures shall provide equivalent or greater protection than procedures that are replaced.

C. Any alternative procedure must be approved in writing by the Project Owner's Representative prior to the implementation of the procedure.

3.9 AIR MONITORING

A. Air monitoring will be carried out by the Project Owner's Representative on behalf of the Owner to verify that the building beyond the contamination area and the outside environment, remains uncontaminated.

B. Background Air Monitoring: The Project Owner's Representative will conduct pre-abatement air monitoring to determine ambient fiber levels prior to abatement. The analytical method shall be Phase Contrast Microscopy (PCM) using the NIOSH 7400 Method.

C. Area Air Monitoring: The Project Owner's Representative will conduct in-progress air monitoring daily to determine area fiber levels within the confines of the work area.

1. Environmental Air Sampling: On each shift, environmental air samples are taken and analyzed to indicate fiber migration from the containment area to the environment. Should any environmental sample exceed the base line of 0.01 f/cc, or established background concentrations, as determined by PCM

analysis, all work will be immediately halted except for corrective work. The Project Owner's Representative shall inspect and determine the source of the high fiber count and notify the contractor with directions for the appropriate corrective action.

D. Clearance Air Monitoring:

1. Following the completion of clean-up operations, notify Project Owner's Representative that work areas are ready for clearance air monitoring.

2. Project Owner's Representative will then sample the air in the work area for airborne fiber concentrations.

3. Phase Contrast Microscopy (PCM): In each homogeneous work area after completion of all cleaning work, a minimum of 2 samples will be taken and analyzed by NIOSH 7400 Method.

a. Release Criteria: Decontamination of the work site is complete when each sample analyzed reveals airborne asbestos fiber concentrations are at or below 0.01 f/cc, or established background concentrations.

b. If these conditions are not met then the decontamination is incomplete and the cleaning procedures noted in 3.4 above shall be repeated. The area shall be retested at no additional cost to Owner until satisfactory levels are obtained.

3.10 OSHA PERSONNEL AIR MONITORING

A. Air monitoring required by OSHA is work of the contractor. The contractor is responsible for providing daily OSHA compliance monitoring as per 29 CFR 1926.1101.

1. At minimum, Contractor shall conduct representative (25% of crew) breathing zone personal air monitoring of its employees twice each shift and repeated daily or until a Anegative exposure assessment", as derived in accordance with 1926.1101 (f) (2)(iii), can be established.

2. Monitoring shall be conducted by a qualified air professional experienced and knowledgeable about the methods of air monitoring and in accordance with CFR 1926.1101.

3. Monitoring results and appropriate laboratory analysis work shall be submitted to Project Owner's Representative within twenty-four (24) hours of the monitoring work.

The drawing on the following page identifies walls in which asbestos-containing joint compound was identified. **Asbestos wallboard is also present in the entire ceiling of the Assembly Room.**

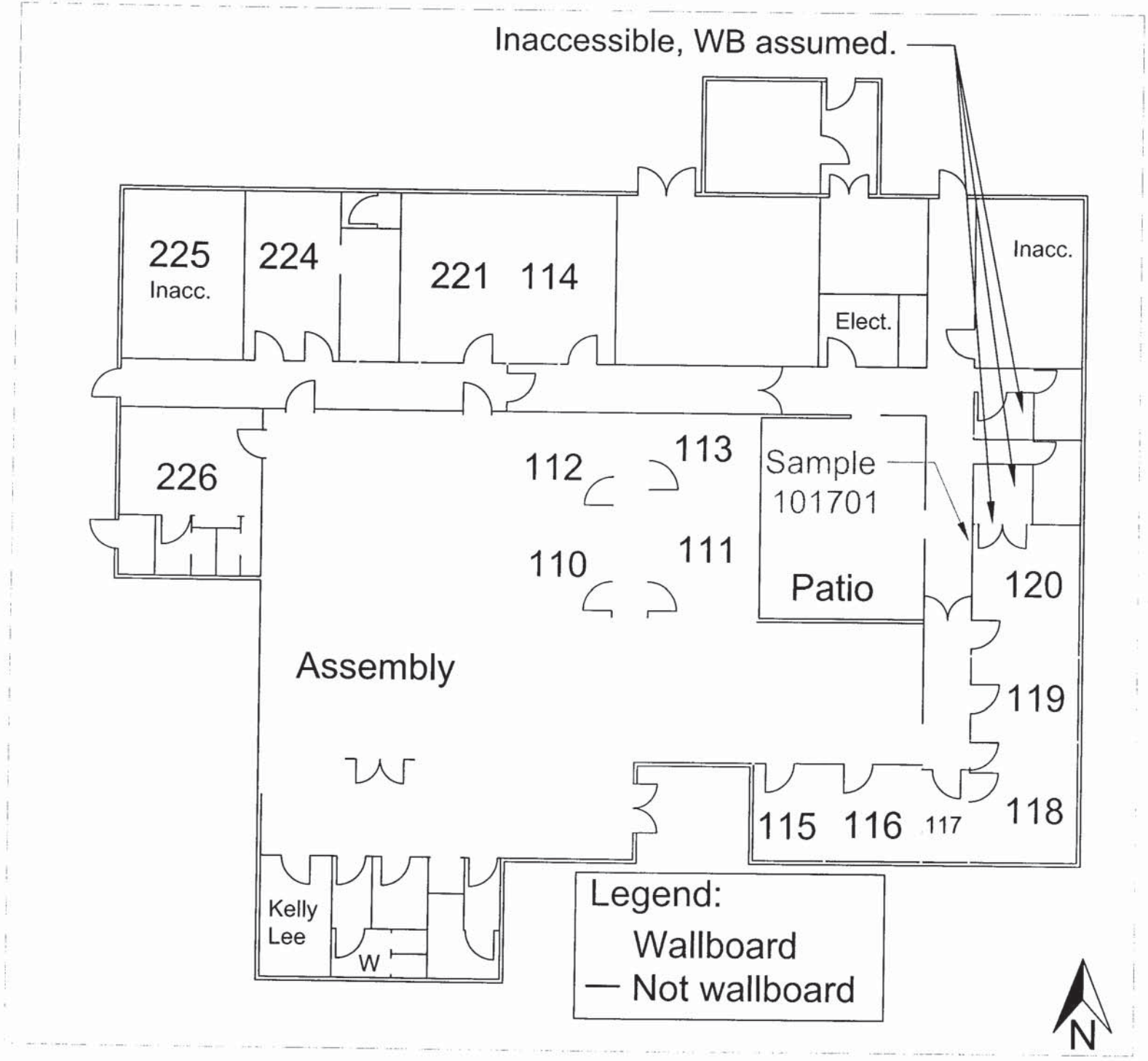

Figure 1: Wallboard Inventory

3231 Torrance Boulevard
Torrance, CA

Firm Name and Address

Ellis Environmental Mgmt, Inc.
430 Silver Spur Rd., Suite 201
Rancho Palos Verdes, CA 90275

Client Name and Address

City of Torrance
3131 Torrance Boulevard
Torrance, CA 90505

Project #	Sheet
12-199	1 of 1
Date: 10/17/2012	

Ellis

MATERIAL	SAMPLE LOCATION	MATERIAL LOCATION	REF.	QTY.	UNIT	FRIABLE	DAMAGE	PERCENT ASBESTOS
IDENTIFIED ASBESTOS MATERIALS								
Wallboard/joint compound	Conference room a/b, north corridor, central corridor	Wallboard with joint compound	6059 6066 6068	2400	s.f.	yes	no	<1
9" beige floor tile/black mastic	room 226, hallway near room 113, room 113, worker's comp room, Kellie Lee's office	Same	0014 0015 0018 0019 0021 0022 0026	1200	s.f.	no	no	0-10
12" white floor tile/black mastic	room 225, room 221, hallway near room 221, front lobby, room 115	room 225, room 221, hallway near room 221, front lobby, room 115	0016 0017 0023 0024 0025	1770	s.f.	no	no	0-8
12" white and blue floor tile/black mastic	room 111	room 111	0020	220	s.f.	no	no	0-3
All roofing mastic		Throughout roof		150	s.f.	no	no	assumed
*quantities shown are not for bidding purposes; field verify.								
IDENTIFIED NON-ASBESTOS MATERIALS								
Upper celling tile Mastic	Conference room a/b		6058					ND
Upper celling wallboard/joint compounnd	Conference room a/b		6059					ND

ND = none detected

MATERIAL	SAMPLE LOCATION	MATERIAL LOCATION	REF.	QTY.	UNIT	FRIABLE	DAMAGE	PERCENT ASBESTOS
Upper 12" celling tile	Conference room a/b		6060					ND
Lower 2'x2'celling tile	Conference room a/b		6061					ND
Newer 12" celling tile	Room 221, main lobby		6062 6063					ND
Original 12" celling tile	Room 110		6064					ND
Original 12" celling tile	North Corridor		6065					ND
Pipe elbow insulation	Restroom		6067					ND
Wall plaster	South east cooridoor		6069					ND
Wallboard/joint compound	Conference room a/b		6070					ND
Wall plaster	Elect. Room/north west cooridoor		6071 6072					ND
Ext. Texture plaster	North east cooridoor		6073					
Baseboard mastic	Outside room 115		6074					
wall plaster	Room 114		6076					

ND = none detected

Ellis

RESULTS SUMMARY - ASBESTOS
3231 Torrance Boulevard
Torrance, CA

12-151
8/21/2012

AmeriSci Los Angeles
24416 South Main Street, Suite 308
Carson, CA 90745
Phone 310-834-4868 / Fax 310-834-4772

Laboratory Report

Report Date: 8/13/2012
Workorder No.: 1208-00023

Customer: Ellis Environmental Management
430 Silver Spur Road Suite 201
Rancho Palos VrCA 90275

Attention: Duane Behrens
Subject: Torrance

Sample: 001 **Description:** 6075 / Br. Cer. Tile - RR
Collection Date: 00/00/0000 **Received Date:** 08/13/2012 **Time:** 9:40:00AM
Matrix:

Parameter	Method	Results	Units	PQL	Tech	Analysis Date	Qual
TTLC for Lead Only							
Lead, Solid, AA	EPA SW-846 7000B/3050B	17000	mg/kg	400	DL	08/13/2012	

Unless otherwise specified, the samples were received in an acceptable condition and met all holding time and preservation-handling requirements. The laboratory does not correct for field or matrix blanks.

To the best of my knowledge this report is true and accurate.

Authorized By/Title: Dennis Liu / CHEMIST Date: 8/13/12

NOTE: All solid results are reported on a dry weight basis unless otherwise noted.

Certifications: CA ELAP: 2322

PQL= Practical Quantitation Limit MDL = Method Detection Limit

AMERISCI
www.amerisci.com

Asbestos, Lead Analysis Chain of Custody

AMERISCI JOB #: 1208-00023

AMERISCI LOS ANGELES
24416 S Main St. Suite 308
Carson, CA 90745
Phone (310) 834-4868
Fax (310) 834-4772

COMPANY:	ADDRESS:	P.O.#:
ELLIS ENV.	430 SILVER SPUR, RPV 90275	12.152

PROJECT INFORMATION	ANALYSIS TYPE	TURNAROUND TIME					AIR FILTER INFORMATION:	
		RUSH	24 HR	48 HR	72 HR	5 DAY		
JOB NAME: TORRANCE	ASBESTOS TEM AHERA						MCE	
	ASBESTOS PLM BULK						PC	
JOB NUMBER: 12.152	ASBESTOS PCM AIR						25 mm	
	ASBESTOS PLM 1000 P.C.						37 mm	
JOB MANAGER: DIANA B.	LEAD AIR						0.45 um	
	LEAD WIPE						0.80 um	
JOB DESCRIPTION:	LEAD PAINT / SOLID						TEMP:	
	OTHER: LEAD TTLC			X			OTHER:	

INITIAL RESULTS DELIVERY: ☐ FAX ☑ EMAIL ☐ VERBAL ☐ MAIL ONLY	RETURN SAMPLES YES_____
REPORTS TO: DB	PHONE: 310 544 1693
INVOICE TO: JANE	FAX:
COMMENTS:	EMAIL:
	PAGER/CELL:

SAMPLE ID	SAMPLE LOCATION	START TIME	STOP TIME	TOTAL TIME	X LITERS /MIN.	= TOTAL VOLUME	AREA SQUARE FT
6025	BR. CER. TILE - RR						

SAMPLED BY: DB	DATE/TIME:	RECEIVED BY:	DATE/TIME:
RELINQUISHED BY: D.	DATE/TIME: 8-13 0930	RECEIVED BY:	DATE/TIME:
RELINQUISHED BY:	DATE/TIME:	RECEIVED IN LAB BY: Pissaway Jones	DATE/TIME: 8/13/12 09.40

PART G
PROJECT SPECIFICATIONS

PROJECT SPECIFICATIONS

TENANT IMPROVEMENT / ACCESSIBILTY UPGRADE

OF

CITY OF TORRANCE

PERSONNEL BUILDING

TORRANCE, CALIFORNIA

PREPARED BY

WITHEE MALCOLM ARCHITECTS, LLP

2251 WEST 190TH STREET
TORRANCE, CALIFORNIA 90504

(310) 217-8885
FAX (310) 217-0425

PROJECT NO. A 9041.109

DATE: OCTOBER - 2012

TECHNICAL SPECIFICATIONS

DIVISION 1 GENERAL REQUIREMENTS

DIVISION 2 SITE WORK

DIVISION 3 CONCRETE

DIVISION 6 WOOD AND PLASTIC

DIVISION 7 THERMAL AND MOISTURE PROTECTION

07210 Building Insulation
07270 Firestopping
07600 Sheet Metal
07900 Calking and Sealants

DIVISION 8 DOORS AND WINDOWS

08110 Hollow Metal
08210 Wood Doors
08410 Aluminum Door Frames for Interior Partitions
08710 Finish Hardware
08800 Glass and Glazing
08900 Window Wall, Storefront and Entrances

DIVISION 9 FINISHES

09100 Metal Support Systems
09250 Gypsum Wallboard
09300 Tile Masonry
09510 Acoustical Ceilings
09650 Resilient Flooring
09682 Carpet Tile
09900 Painting
09955 Fiberglass Reinforced Polyester Panels

DIVISION 10 SPECIALTIES

10010 Building Specialties
10162 Metal Toilet Partitions
10800 Toilet Accessories

DIVISION 12 FURNISHINGS

12510 Mini Blinds

DIVISION 15 MECHANICAL

15000 Mechanical

DIVISION 16 ELECTRICAL

END OF TABLE OF CONTENTS

SECTION 01010

SUMMARY OF WORK

1.01 DESCRIPTION: The Work includes Tenant Improvement and Accessibility Upgrades of CITY OF TORRANCE

PERSONNEL BUILDING
3231 TORRANCE BLVD.
TORRANCE, CALIFORNIA 90503

In strict conformance with the Drawings and Specifications prepared by:

WITHEE MALCOLM ARCHITECTS, LLP
2251 West 190th Street
Torrance, California 90504
Telephone (310) 217-8885
Fax: (310) 217-0425

AND OTHER CONSULTANTS

1.02 WORK NOT IN THE CONTRACT: The term "NIC" means "Not In Contract". Following portions of the Work will be provided by the Owner under separate contract or other arrangement:

1. All other items indicated or specified as NIC.

1.03 INFORMATION TO CONTRACTORS: The Contractor shall be aware the there are various locations discussed in this Manual and not all specification sections are related to all locations. Contractor shall use only sections that apply to his exact project.

END OF SECTION

SECTION 01015

DEFINITIONS

PART 1 - GENERAL

1.01 DESCRIPTION: This Section covers additional definitions supplementary to those given in the Conditions of the Contract.

1.02 DEFINITIONS:

A. **Drawings**: Words such as "shown", "indicated", "detailed", "noted", "scheduled", or words of similar import shall mean that reference is made to the information on the Drawings unless stated otherwise.

B. **Architect**: Words such as Architect shall mean that of Architect/Engineer unless stated otherwise.

C. **Contractor**: Words such as Contractor shall mean specific Prime Contractor(s) unless stated otherwise.

D. **Owner/Owner's Representative**: Words such as Owner/Owner's Representative shall mean that of City's Program Manager unless stated otherwise.

E. **Construction Manager**: Shall mean the City's Construction Manager.

F. **Actions of Architect**: Such words as "directed", "designated", "selected", and words of similar import shall mean that the direction, designation, selection, or similar action of the Architect is intended unless stated otherwise.

G. **Required**: The word "required" and words of similar import shall mean "required to complete the Work" and "required by the Architect", as is applicable to the context of the place where used, unless stated otherwise.

H. **Perform**: The word "perform" shall be understood to mean that the Contractor, at his expense, shall perform all the operations necessary to complete the Work or mentioned portions of the Work, including furnishing and installing materials as are indicated, specified, or required to complete such performance.

I. **Provide**: The term "provide" shall be understood to mean that the Contractor, at his expense, shall furnish and install the Work and the mentioned portion of the Work, complete and ready for the intended use. These definitions apply the same to future, present, and past tenses except "provided" may mean "contingent upon" where such is the context.

J. **Equal**: Terms such as "equal", "approved equal", "equivalent", and all terms of similar import shall be understood to be followed by the phrase "in the opinion of

the Architect" unless stated otherwise. Refer to Section 01600 Materials and Equipment in Paragraph 1.03 for additional definitions and requirements.

K. **Approval**: Such words as "approved", "approval", "acceptable", "acceptance", or words of similar import shall mean that approval, acceptance, or similar import of the Architect is intended unless stated otherwise.

L. **Submit**: Such words as "submit", "submittal", "submission" and terms of similar import shall include the meaning of the phrase "submit to the Architect for his approval" unless otherwise stated.

M. **Expense**: Such terms as "at no extra cost to Owner", "with no extra compensation to Contractor", "at Contractor's expense", or phrases of similar import shall be understood to mean that the Contractor shall perform or provide the operation or Work with no increase to the Contract Sum stated in the Agreement.

N. **Fees and Charges**: To the extent indicated or specified, Contractor shall secure the permits, governmental authorizations, utility fees, licenses, inspections, and all similar requirements and shall pay all costs relating thereto no matter how such costs are defined by the political subdivision, public authorities or agencies, public utilities, telephone company, special district, quasi-governmental entity, or other agency involved.

O. **Language**: Specifications are written in a modified brief style consistent with clarity. Generally, the words "the", "shall", "will" and "all" are not stated. Words requiring an action or performance, such as "perform", "provide", "erect", "install", "furnish", "connect", "test", "coordinate", and words and phrases of similar import, shall be understood to be preceded by the phrase "The Contractor shall" unless otherwise stated. The requirements indicated and specified apply to all Work of the same kind, class, and type, even though the word "all" is not stated.

P. **Titling and Arrangement**: Article, Paragraph, and Subparagraph titles and other identifications of subject matter in the Specifications are intended as an aid in locating and recognizing various requirements in the Specifications. Except where titling forms a part of the text, such as beginning words of a sentence or where the title establishes the subject, the titles are subordinate to and do not define, limit, or otherwise restrict the Specification text. Underlining or capitalizing of any words in the text does not signify or mean that such words convey special or unique meanings having precedence over any other part of the Contract Documents. Specification text shall govern over titling and shall be understood to be and interpreted as a whole. The order of Articles, Paragraphs, Subparagraphs, and Sub-subparagraphs in the Specifications text is defined by the sequence of indentations.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01048

CONTRACTOR'S REQUESTS FOR INFORMATION

PART 1 - GENERAL

1.01 DESCRIPTION: All other sections of Division 1 apply to this Section. This Section covers the general requirements for Contractor's Requests for Information, and pertains to all portions of the contract documents.

A. Related Work Specified Elsewhere:

1. Project Meetings - Section 01200
2. Submittals - Section 01300

1.02 DEFINITION: Request for Information, a document submitted by the Contractor requesting clarification of a portion of the contract documents, hereinafter referred to as RFI.

1.03 CONTRACTOR'S REQUESTS FOR INFORMATION:

A. When the Contractor is unable to determine from the contract documents, the exact material, process or system to be installed, the Engineer shall be requested to make a clarification of the indeterminate item. Wherever possible, such clarification shall be requested at the next appropriate project meeting, with the response entered into the meeting minutes. When clarification at the meeting is not possible, either because of the urgency of the need, or the complexity of the item, Contractor shall prepare and submit an RFI to the Engineer.

B. Contractor shall endeavor to keep the number of RFI's to a minimum. In the event that the process becomes unwieldy, in the opinion of the Engineer, because of the number and frequency of RFI's submitted, the Engineer may require the Contractor to abandon the process and submit all requests as either submittals, substitutions or requests for change.

C. RFI's shall be submitted on a form provided by, or approved by, the Engineer. Forms shall be completely filled in, and if prepared by hand, shall be fully legible after copying by xerographic process. Each page of attachments to RFI's shall bear the RFI number in the lower right corner.

D. RFI's from subcontractors or material suppliers shall be submitted through, reviewed by, and signed by the Contractor prior to submittal to the Engineer.

E. Contractor shall carefully study the contract documents to assure that the requested information is not available therein. RFI's which request information available in the contract documents will not be answered by the Engineer.

F. **In all cases where RFI's** are issued to request clarification of coordination issues, for example, pipe and duct routing, clearances, specific locations of work shown diagrammatically, and similar items, the Contractor shall fully lay out a suggested solution using drawings or sketches drawn to scale, and submit same with the RFI. RFI's which fail to include a suggested solution will not be answered.

G. **RFI's shall not be** used for the following purposes:

1. To request approval of submittals
2. To request approval of substitutions,
3. To request changes which entail additional cost or credit.
4. To differentiate methods of performing work than those drawn and specified.

H. **In the event the Contractor** believes that a clarification by the Engineer results in additional cost, Contractor shall not proceed with the work indicated by the RFI until a change order is prepared and approved. Answered RFI's shall not be construed as approval to perform extra work.

I. **Unanswered RFI's** will be returned with a stamp or notation: Not Reviewed.

J. **Contractor shall prepare** and maintain a log of RFI's, and at any time requested by the Engineer, Contractor shall furnish copies of the log showing all outstanding RFI's. Contractor shall note all unanswered RFI's in the log.

K. **Contractor shall allow** for 14 days review and response time for RFI's.

PART 2 – PRODUCTS - Not applicable to this Section.

PART 3 – EXECUTION - Not applicable to this Section.

END OF SECTION

SECTION 01049

SUPPORTING FROM BUILDING STRUCTURE

PART 1 - GENERAL

1.01 CONDITIONS & REQUIREMENTS:

A. **The requirements of this** Section relate to various requirements of the Agreement, General and Supplementary Conditions, Specifications, Drawings and all modifying documents which are part of the Construction Contract. Responsibility for coordination of all such applicable requirements shall be that of the Contractor. Refer to the General Conditions, Supplementary Conditions, and General Requirements.

1.02 DESCRIPTION:

A. **This section provides** guidelines and limitations for supporting all mechanical, electrical, plumbing, equipment or architectural items from the building structure, and for seismic bracing for all such items.

B. **Design and install all** support and bracing systems except as noted. Provide for attachment to portions of the building structure capable of bearing the loads imposed. Design systems to not overstress the building structure.

C. **The Contractor is not** required to design support and bracing for items for which the contract documents provide specific attachment, support, and bracing. Seismic bracing is not required for the following items:

1. Gas piping less than 1" inside diameter.
2. All other piping less than 2.5" inside diameter, unless racked together.
3. All piping and duct suspended by individual hangers 12" or less in length.
4. All rectangle air handling ducts less than 6 square feet in cross sectional area.
5. All round air handling ducts less than 28" in diameter.
6. All electrical conduits less than 2.5" inside diameter, unless racked together.

1.03 QUALITY ASSURANCE

A. **Design and install** all support systems to comply with the seismic zone 4 requirements of the 2007 California Building Code (CBC) Chapter 16.

B. **For seismic bracing** design and gravity support design use the services of a professional engineer licensed in California.

C. **For seismic bracing** for mechanical, electrical and plumbing systems, refer to the Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA), "Seismic Restraint Manual: Guidelines For Mechanical Systems" for guidelines.

1.04 SUBMITTALS:

A. **Submit shop drawings** for all substructures and attachment methods.

B. **Submit proposed alternative** methods of attachment for review and approval by the Architect, prior to deviating from the requirements given below.

C. **For all seismic bracing** systems and gravity support systems, submit structural calculations and details prepared and signed by the Contractor's licensed professional engineer which include all resultant forces applied to the building structure. Do not overstress the building structure. Calculations will be reviewed for compliance with design criteria only.

PART 2 - PRODUCTS

2.01 MATERIALS:

A. **Furnish all substructures** and fasteners required to comply with the limitations given below. Use materials as specified in the various sections and as appropriate to the use.

B. **Channel framing systems**: as specified in Section 05500.

C. **All exterior materials**: hot dipped galvanized or stainless steel.

PART 3 - EXECUTION

3.01 GUIDELINES & LIMITATIONS:

A. **The General Contractor** shall coordinate the load requirements from all subcontractors so that no combination of loads exceeds the limitations given below.

B. **Wood Structure**:

Support no loads from plywood deck.
At 2x4 or other stiffeners of roof panels, hang no loads.
At GLB girders, hang no loads greater than 200 pounds without consultation.
For multiple loading (on girder or from incoming purlin) submit drawings for Architect's review.
At floor joists, a concentrated load of 150 pounds maximum may be placed

anywhere along the span.
Place all fasteners for hanger support within the middle 1/3 of the member depth.
Total loads superimposed on the roof structure shall not exceed the equivalent design loading of 4.5 pounds/square foot.

3.02 SEISMIC BRACING:

A. **In applying formulae** (32-1) or (32-2) from Chapter 16 of the 2007 CBC the value for "Ip" (importance factor) shall be assumed to be no less than 1.5, unless a higher value is required by the CBC.

B. **Design and install** seismic bracing so as not to ground out vibration and sound isolation items.

C. **All items of mechanical** and electrical equipment shall be seismically braced whether such bracing is shown or not.

END OF SECTION

SECTION 01060

REGULATORY REQUIREMENTS

PART 1 - GENERAL

1.01 DESCRIPTION: Division 1 and this Section covers general requirements for codes and standards pertaining to the Work and is supplementary to the codes and standards mentioned or referenced elsewhere in the Contract Documents.

1.02 CODES AND STANDARDS:

A. **Requirements of Regulatory Agencies**: All pertaining statutes, ordinances, laws, rules, codes, regulations, standards, and lawful orders of public authorities having jurisdiction of the Work of this Contract are hereby incorporated into the Contract Documents the same as if repeated in full herein and are intended wherever reference is made in either the singular or plural to Code or Building Code except as otherwise specified, including, but not limited to, those in the following listing. Contractor shall make available at the site such copies of the listed documents applicable to the Work as Architect or Owner may request, including mentioned portions of the California Code of Regulations (CCR).

1. 2007 California Building Code of jurisdiction including any amended requirements by the City of Torrance Building Department approvals for materials, equipment, systems, and designs as applicable to the Work.
2. Title 8 CCR, Industrial Relations, including Chapter 4, Div. of Industrial Safety, Safety Orders (CAL/OSHA).
3. Title 19 CCR, Public Safety.
4. Title 22 CCR, Social Security.
5. 2007 CBC Title 24, Building Standards, including ADA regulations, architectural barrier laws and regulations regarding disabled persons.
6. 2007 CBC and Local Mechanical Codes.
7. 2007 CBC and Local Plumbing Codes.
8. Local and State Elevator Codes.
9. 2007 CBC and Local and 1998 National Electrical Codes.
10. 2007 CFC and Current Edition of National Fire Protection Association.
11. State and Local Public Health Codes.
12. (SSPWC) Standard Specifications for Public Works Construction, Current Edition.
13. All other laws, regulations, rules, orders, codes, and ordinances specified in other Sections of these Specifications or bearing on the Work.

END OF SECTION

SECTION 01070

ABBREVIATIONS

PART 1 - GENERAL

1.01 DESCRIPTION: This Section covers abbreviations for the documents mentioned or referenced elsewhere in the Contract Documents, and language abbreviations used in the text of the Specifications. Abbreviations in Drawings and Specifications shall be interpreted according to recognized and well-known technical, industry, or trade meanings.

1.02 TRADE ABBREVIATIONS include but are not limited to the following:

AA	Aluminum Association
AABC	Associated Air Balance Council
AAMA	Architectural Aluminum Manufacturers Association
AASHTO	American Association of State Highway and Traffic Officials
ACI	American Concrete Institute
ADC	Air Diffusion Council
AEIC	Association of Edison Illuminating Companies
AFBMA	Anti-Friction Bearing Manufacturers Association
AFI	Air Filter Institute
AGA	American Gas Association
AGMA	American Gear Manufacturers Association
AIA	American Institute of Architects
AIMA	Acoustical and Insulating Materials Association
AISC	American Institute of Steel Construction, Inc.
AISI	American Iron and Steel Institute
AMCA	Air Moving and Conditioning Association, Inc.
ANSI	American National Standards Institute
ARI	Air Conditioning and Refrigeration Institute
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASSE	American Society of Sanitary Engineers
ASTM	American Society for Testing and Materials
AWPA	American Wood Preservers Association
AWPB	American Wood Preservers Bureau
AWPI	American Wood Preservers Institute
AWS	American Welding Society
AWWA	American Water Works Association
CBM	Certified Ballast Manufacturers
CCR	California Code of Regulations (Formerly CAC)
CDA	Copper Development Association
CGA	Compressed Gas Association

CISPI	Cast-Iron Soil Pipe Institute
CS	Commercial Standard, US Department of Commerce
CTI	Cooling Tower Institute
DEMA	Diesel Engine Manufacturers Association
DOD-	Department of Defense (leading symbol)
EIA	Electronic Industries Association
ETL	Electrical Testing Laboratories
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
Fed Spec	Federal Specification or Standard
FIA	Factory Insurance Association
FM	Factory Mutual
HI	Hydraulic Institute
IEEE	Institute of Electrical and Electronic Engineers
IES	Illuminating Engineering Society
IPCEA	Insulated Power Cable Engineers Association
ISO	International Standards Organization
MIL	Military Specification or Standard (leading symbol)
MSS	Manufacturers Standardization Society
NAAMM	National Association of Architectural Metal Manufacturers
NAFM	National Association of Fan Manufacturers
NBS	National Bureau of Standards
NEBB	National Environmental Balancing Bureau
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NFC	National Fire Code
NFPA	National Fire Protection Association
NSF	National Sanitation Foundation
NWWDA	National Wood Window and Door Association
OSA	Office of the State Architect
PDI	Plumbing and Drainage Institute
PS	Product Standard, US Department of Commerce
REA	Rural Electrification Administration
RIS	Redwood Inspection Service
SAE	Society of Automotive Engineers
SDI	Steel Door Institute
SFM	State Fire Marshal
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
SSPC	Steel Structures Painting Council
UL	Underwriters' Laboratories, Inc.
WCLIB	West Coast Lumber Inspection Bureau
WIC	Woodwork Institute of California
WWPA	Western Wood Products Association

1.03 TEXT ABBREVIATIONS include but are not limited to the following:

AMP or amp	Ampere
CFM or cfm	Cubic feet per minute
FPM or fpm	Feet per minute
FPS or fps	Feet per second
GPM or gpm	Gallons per minute
Kip or kip	Thousand pounds
Ksi or ksi	Thousand pounds per square inch
Ksf or ksf	Thousand pounds per square foot
KV or kv	Kilovolt
KVA or kva	Kilovolt amperes
KW or kw	Kilowatt
KWH or kwh	Kilowatt hour
LF or lf	Linear foot
MPH or mph	Miles per hour
PCF or pcf	Pounds per cubic foot
PSF or psf	Pounds per square foot
PSI or psi	Pounds per square inch
SF or sf	Square foot
SY or sy	Square yard

PART 2 - PRODUCTS (Not applicable to this Section)

PART 3 - EXECUTION (Not applicable to this Section)

END OF SECTION

SECTION 01300

SUBMITTALS

PART 1 - GENERAL

1.01 DESCRIPTION: This Section covers the general requirements and procedures for submittals.

A. Submittal Requirements In This Section:

1. Schedule of submittals and transmittals.
2. Deviations.
3. Contractor's review and approval.
4. Corrections and resubmittals.
5. Review and approval.
6. Shop Drawings, samples, and product and equipment data.
7. Manufacturers' instructions.
8. Materials furnished under standard specifications.
9. Certificates.

B. Submittal Requirements Not In This Section:

1. Performance and payment bonds, insurance - Conditions of the Contract.
2. Record Drawings, manuals, and maintenance materials - Section 01700.
3. Warranties and guarantees - Section 01740.

1.02 GENERAL SUBMITTAL REQUIREMENTS: Submit to the Architect all submittals required herein, under other Sections, or by Modifications except as otherwise indicated, specified, or directed. Submittals shall be correctly prepared, identified, and transmitted as specified herein or as otherwise directed. Prepare submittals according to the requirements herein and as may be specified in other Sections.

A. Conformance: Do not purchase or commence any Work covered by a submittal until the pertaining submittal is approved. Work shall conform to approved submittals and all other requirements of Contract Documents unless revised by Modification, in which case submit revised submittals as directed or required at no extra cost to the Owner. Do not start related Work affected by Work covered in submittals until applicable submittals are approved, especially where machinery, equipment, piping, conduit, and required arrangements and clearances are involved.

B. Schedule of Submittals: Submit within 10 days of the Award of the Contract, the Progress Schedule submitted by the Contractor shall include an itemized listing of all required submittals with a scheduled date for each submittal, and shall allow reasonable times for review by the Architect and various Consultants plus time for delivery or return. Contractor shall consult with Architect regarding

major and/or large submittals and time periods required by the Architect for the reviews prior to preparation of the Progress Schedule. Extension of the Contract Time will not be granted because of the Contractor's failure to make timely and correctly prepared and transmitted submittals with an adequate and approved time allowance for the checking and review periods.

C. **Transmittals**: Deliver submittals with a dated and sequence numbered transmittal letter typed on Contractor's letterhead, noted as to the initial or resubmittal status, and describing the submittal contents. Submittals are not acceptable directly from Subcontractors, suppliers, or manufacturers. In each transmittal state the Drawing numbers and Specification Section, Articles, and Paragraphs to which the submittal pertains and identify accompanying data, catalogs, drawings, sketches, and brochures in the same manner. Include Transaction Log on Transmittal Form i.e

To Architect:	(Date)__
To Consultant:	_____
From Consultant	_____
To Contractor	_____

D. **Deviations**: Notify the Architect in the transmittals of all deviations from the requirements of the Contract Documents. Fully describe each deviation and all other changes required to correlate the Work including the related Work. State in writing all variations in costs caused by each deviation and the Contractor's assumption of costs for the deviation and of all related costs if any deviation is approved.

E. **Contractor's Review and Approval**: Every submittal upon which proper execution of the Work is dependent shall bear the Contractor's review and approval stamp, dated and signed by Contractor in every case, certifying that Contractor (a) has reviewed, checked, and approved the submittal and has coordinated (missing dimensions or information requested on Submittal) the submittal contents with requirements of the Work and Contract Documents including related Work, (b) determined and verified quantities, field measurements, construction criteria, materials, equipment, catalog numbers and identifications, and similar data, or will do so, and (c) states that Work illustrated or described in the submittal is recommended by Contractor and that Contractor's warranty will fully apply thereto.

F. **Corrections and Resubmittals**: Contractor shall make corrections required by the Architect, resubmit corrected submittals until they are approved, shall direct specific attention in writing to all revisions other than corrections called for on previous submittals, and shall state in writing all changes in costs for such revisions and assumption of all costs for revisions and related changes the same as is required for deviations in Paragraph "Deviations".

G. **Check of Returned Submittals**: Contractor shall check and review the submittals returned for correction and ascertain whether the required corrections result in extra cost above that included in the Contract, and shall give written notice to the Architect within 5 working days if, in the Contractor's opinion, extra costs result from corrections. The Contractor's failure to give such written notice or the starting of any Work covered by a returned submittal constitutes a waiver by the Contractor of claims for extra costs resulting from required corrections.

H. **Review And Approval Of Submittals By The Architect**: Submittals will be reviewed with reasonable promptness, but only for conformance with the design concept of the Project and with the information indicated on the Drawings and stated in the Specifications. Approval of a separate item as such will not indicate approval of the assembly in which the item functions. Approval of submittals shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract Documents or for any revision in resubmittals unless Contractor has given written notice of such deviation or revision at the time of submission or resubmission and written approval has been given to the specific deviation or revision, nor shall approval relieve the Contractor of responsibility for errors or omissions in the submittals or for the accuracy of dimensions and quantities, the adequacy of connections, and the proper and acceptable fitting, execution, functioning, and completion of the Work.

I. **Incomplete Or Inadequate Submittals**, including those not correctly transmitted, titled, and identified, or not bearing Contractor's review and approval stamp, will be returned to the Contractor without review.

J. **Interrelated Submittals**: Except where the preparation of submittal information is dependent upon the approval of any prior submittal, all submittals pertaining to the same class or portion of the Work shall be submitted simultaneously.

K. **Expense**: All cost for the preparation, correction, delivery, and return of the submittals shall be borne by Contractor.

1.03 SUBMITTAL REQUIREMENTS FOR COMMISSIONING

A. **Normal Submittals:**

1. The Commissioning Authority will receive a copy of the normal submittals for equipment to be commissioned.
2. The Commissioning Authority will review normal Contractor submittals applicable to systems being commissioned for compliance with commissioning needs, concurrently with review by the Architect and Responsible Engineer.

B. Data for Commissioning:

1. The Contractor will receive a written request from the Commissioning Authority requesting specific information needed about each piece of commissioned equipment or system. This will include detailed manufacturer installation and start-up, operating, troubleshooting and maintenance procedures, full details of any owner-contracted tests, fan and pump curves, full factory testing reports and full warranty information, including all responsibilities of the Owner to keep the warranty in force clearly identified. In addition, the installation and checkout materials that are actually shipped inside the equipment and the actual field checkout sheet forms to be used by the factory or field technicians shall be submitted to the Commissioning Authority.
2. The Commissioning Authority may request further documentation necessary for the commissioning process.
3. This data request may be made prior to normal submittals.
4. Much of this information is contained in the regular O&M manual submittals normally submitted in the project and is required prior to the regular formal O&M manual submittals.

C. Contractor's responsibility for deviations in submittals from requirements of the Contract Documents is not relieved by the Commissioning Authority's review.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 SHOP DRAWINGS: Prepare each submittal complete including all dimensions, design criteria, materials, connections, bases, foundations, anchors, and the like, and further including such technical and performance data as is necessary to confirm the information in the Shop Drawings. Issue Shop Drawings as a PDF File or Hard Copy. Cad Files may or may not be available, contact Architect for availability and fee required.

Copies of the Contract Drawings marked to show Shop Drawing information are not acceptable and will be returned to the Contractor unreviewed. Each Shop Drawing shall have an adequate title block showing the following identification:

Name and address of the Work.
Name and address of the Contractor.
Name and address of the Subcontractor, Subsubcontractor, manufacturer, supplier, or distributor, as applicable.
Name and address of the Architect.
Date, scale of drawings, and identification number.
Contractor's review and approval stamp, dated and signed.

A. **Initial and Resubmittals**: Submit Shop Drawings in sets consisting of one reproducible and three blue-line prints.

B. **Correction and Approval of Shop Drawings**: The Architect will mark corrections, notations, or approval on printed sheets and return them to the Contractor. Resubmit in same manner if Shop Drawings are not approved.

C. **Final Distribution**: Furnish and distribute prints of approved Shop Drawings as required for performance of the Work.

3.02 SAMPLES: Unless otherwise specified, each submittal shall include (4) Four complete sets of Samples. Two sets of approved Samples and all disapproved Samples will be returned to Contractor. Samples of value retained by Architect will be returned to Contractor after completion of the Work if the Contractor's first transmittal for the Sample requests its return. Approved Samples of items returned to Contractor may be installed in the Work if the location is recorded and the Samples bear temporary identification as such.

3.03 PRODUCT AND EQUIPMENT DATA SUBMITTALS:

A. **Product Data** shall include materials lists, catalogs, brochures, performance and technical data, service history, characteristics, and like information to fully describe the products covered by the submittal.

1. Submittal Preparation. Bind submittal copies with sturdy labeled covers and include a typed index listing the contents. Loose or unbound submittals will be returned unreviewed. For each item listed, include the manufacturer's name and address, the trade or brand name, all conditions of manufacturer's guarantee and warranty, information to fully describe each item, and supplementary information as may be required for approval. Mark clearly and completely cuts, brochures, and data to indicate the items proposed and the intended use.

2. Product Data Submittals. Unless otherwise specified, every submittal shall include four bound copies. One copy will be returned to the Contractor marked to show the required corrections or approval. If corrections are required, the final submittal shall include four bound corrected copies.

B. **Equipment Data**: Submit complete technical, performance, and catalog information for every item of mechanical and electrical equipment and machinery proposed for installation in the Work, bound, indexed, and containing information and data as required in Paragraph "Product Data" above. Include information on performance and operating curves, ratings, capacities, characteristics, power efficiencies, manufacturers' standard guarantees and warranties with the terms and conditions fully described, and all other information to fully illustrate and describe the items as may be specified or required for

approval. Submit in sets which cover complete systems or functioning units. Unless otherwise specified, submittals shall be as specified in Subparagraph "Product Data Submittals". If applicable, incorporate the equipment data into and submit with the manuals specified under Section 01700.

3.04 MANUFACTURERS' INSTRUCTIONS: Submit manufacturers' installation instructions and directions for materials specified to be installed in accordance with such instructions to demonstrate the adequacy of the instructions. Furnish copies to all trades involved.

3.05 MATERIALS FURNISHED UNDER STANDARD SPECIFICATIONS: For materials specified by reference to standard or reference type specifications, prepare and submit for approval a list of such materials by manufacturer's names and identifications to the extent requested by the Architect or Owner.

3.06 CERTIFICATES: Deliver all certificates to Architect. Each certificate required under the Contract Documents shall be signed by the individual, officer, or the agent lawfully authorized to execute the certificate, and such authority shall be cited in the certificate by title, description, or other acceptable evidence. All certificates shall be sworn and notarized as to the correctness and validity of the contents, and copies shall be notarized to be true copies.

END OF SECTION

SECTION 01400

QUALITY CONTROL

PART 1 - GENERAL

1.01 DESCRIPTION: This Section covers general requirements for quality control of the Work, including testing and inspection procedures.

A. Requirements In This Section:

1. Testing laboratory or agency.
2. Geotechnical (Soils or Foundation) Engineer.
3. Coordination of tests and inspections.
4. Test costs and reports.
5. Inspections, continuous and special.
6. Contractor-furnished assistance.
7. Verification of conditions.

B. Requirements Not In This Section:

1. Specific test procedures in other Sections to be performed in accordance with this Section.
2. Testing of electrical work.
3. Testing of materials specified to be tested by other agencies under other Section.

1.02 GENERAL QUALITY CONTROL REQUIREMENTS:

A. General Test Requirements: Materials to be furnished under the Contract are subject to testing and inspection for compliance with requirements of Drawings and Specifications.

B. Testing Laboratory or Agency shall be the licensed Testing Laboratory or Agency, being acceptable to the City having jurisdiction and certified as meeting the requirements of ASTM D3666, D3740, E329, E543, and E548 as applicable to the Work and approved by the Owner, and referred to hereafter as the Testing Laboratory. Perform all testing under supervision and control of a California registered professional engineer employed by Testing Laboratory.

C. Soils or Foundation Engineer will be the registered professional Geotechnical Engineer employed and paid by Owner.

D. Disqualified Material: Any material shipped or delivered to the site by the Contractor from the source of supply prior to having satisfactorily passed the required testing and inspection, or prior to the receipt of a notice from the

Architect that such testing and inspection will not be required, shall not be incorporated in the Work.

1.03 COORDINATION OF TESTS AND INSPECTIONS: Contractor shall initiate and coordinate testing and inspections required by Contract Documents and public authorities having jurisdiction of the Work.

A. **Notification**: Contractor shall notify the Owner a sufficient time in advance of the manufacture of material to be supplied by him which, by requirements of the Contract Documents, must be tested at the source of supply in order that the Owner may arrange for the testing.

1.04 TEST SAMPLES AND PROCEDURES:

A. **Test Samples**: Furnish and deliver Samples of materials to be tested at no extra cost to Owner. Test samples will be selected by the Architect, Inspector, or Testing Laboratory and not by the Contractor.

B. **Test Procedures**: Testing Laboratory shall perform tests according to ASTM or other methods of test specified for the various materials under other Sections. If no procedure or test method is specified, testing shall conform to material specification referenced unless otherwise directed by Architect. The Testing Laboratory shall tag, seal, label, record, or otherwise suitably identify the materials for testing and no such materials shall be used in the Work until the test result reports are submitted and approved, excepting only the materials specified to be placed or installed prior to testing.

C. **Test Repeating**: Repeat applicable tests at specified intervals, whenever the source of supply is changed, or whenever the characteristics of the materials change or vary in the opinion of Owner or Architect.

1.05 TEST COSTS: Owner will pay for testing performed by Testing Laboratory except Contractor shall reimburse the Owner for retesting costs caused by failure of materials to pass initial tests. Contractor shall arrange and pay for all other testing.

1.06 INSPECTION AND TEST REPORTS: Furnish copies of each inspection and test result report, signed and certified by the Testing Laboratory supervising engineer, as follows:

	Copies
Owner	1
Architect	1
Structural Engineer (structural inspection and test only)	1
Contractor	2
Building Department	1

1.07 INSPECTIONS, CONTINUOUS AND SPECIAL:

A. **Inspections**, continuous and special, shall be performed by Registered Deputy approved by Agency, or Special Inspectors (hereinafter referred to as the Inspector) as required by the Contract Documents and Building Code. During course of Work under inspection, each Inspector shall submit detailed reports relative to progress and condition of Work including variances from the Contract Documents, and stipulating dates, hours, and locations of the inspections.

B. **Inspection Costs**: Owner will employ Inspector and pay for required continuous and special inspections.

C. **Reimbursement of Inspection Costs**: The Contractor shall reimburse to the Owner all or any part, as the Owner may deem just and proper, of the actual excessive inspection costs incurred by the Owner due to any or all of the following:

1. Contractor's failure to complete the Work within the Contract Time stated in the Agreement, and any previously authorized extensions thereof.
2. Claims between separate contractors.
3. Covering of any of the Work before the required inspections or tests are performed.
4. Extra inspections required for Contractor's correction of defective Work.
5. Overtime costs for acceleration of Work done for Contractor's convenience.

D. **Approvals Required by Others**: If the laws, ordinances, rules, regulations, or orders of any public agency having jurisdiction require any of the Work to be specifically inspected, tested, or approved by some authority other than the Owner, Architect, or Contractor, the Contractor shall give all required notices and make all arrangements, shall deliver to the Architect the certificates of inspection, testing, or approval of such public agency, and shall pay all costs therefor unless otherwise provided in the Contract Documents.

1.08 CONTRACTOR-FURNISHED ASSISTANCE: Whenever requested, Contractor shall furnish access, facilities, and labor assistance as necessary for duties to be performed at the site by Testing Laboratory and Inspector including furnishing ladders, hoisting, temporary lighting and water supply, and like services.

1.09 VERIFICATION OF CONDITIONS: Prior to installation of any portion of the Work, the installing Contractor, Subcontractor, or Sub-subcontractor shall inspect the Work in place to receive the Work to be installed and arrange for correction of defects in the existing workmanship, material, or conditions that may adversely affect Work to be installed. Such inspections shall include test applications of the materials to be installed as required to establish the correct condition of surfaces involved. Installation of materials on Work in place constitutes acceptance by the installing

Contractor, Subcontractor, or Sub-subcontractor of such Work in place as being in proper condition to receive the materials to be applied and waiver of claim that the Work in place is defective as pertains to warranty requirements, excluding unascertainable or concealed conditions. Where the Specifications require a material to be installed under the supervision or inspection of the material manufacturer or his representative, manufacturer or his representative also shall inspect the Work in place and issue a letter of approval to Architect.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 TESTS AND INSPECTIONS: Contractor will pay for the following testing and inspections except as stated otherwise for specific items.

A. Concrete Work:

1. Mix design of concrete - costs paid by Contractor.
2. Conformance testing of materials - costs paid by Contractor.
3. Casting and testing of cylinders.
4. Inspector during construction of Tilt-up panel formwork
5. Inspector during placing of concrete.

B. Reinforcing Steel:

1. Review and approval of mill certificates.
2. Conformance testing of bars - costs paid by Contractor.
3. Inspector for welding of bars.
4. Inspector during placement of bars.

END OF SECTION

SECTION 01500

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 - GENERAL

1.01 DESCRIPTION: This Section covers general requirements for construction facilities and temporary controls for the Work.

A. Work In This Section: Principal items include:

1. Temporary barricades.
2. Temporary storage facilities.
3. Temporary offices and telephones.
4. Temporary toilet facilities.
5. Temporary utility services.
6. Temporary facilities for Work in existing buildings.
7. Removal of temporary facilities.
8. Construction project sign.

1.02 GENERAL: Drawings indicate building site and related areas of Owner's property available for the Work. Keep areas orderly, free of hazards, and leave in clean condition acceptable to Architect, Owner, and governing public authorities.

PART 2 AND 3 - PRODUCTS AND EXECUTION

2.01 TEMPORARY BARRICADES: Provide solid or fencing type barricades. Construct and relocate or alter as required by the Owner, Architect, Code, or public authorities having jurisdiction. Paint solid barricades exposed to public view with 2 coats of paint in colors designated by Architect. Secure and pay for building and street use permits and inspections required by Code.

2.02 TEMPORARY STORAGE FACILITIES: Provide temporary storage facilities necessary to protect materials and equipment delivered to site from damage. Maintain sheds in a clean and sightly condition. Distribute all materials stored in permanent structures to prevent overloading of floors or structure. If on-site storage area is inadequate, arrange and pay for necessary off-site facilities.

2.03 OFFICES AND TELEPHONES: Provide office space on site as required. Office may be temporary construction but waterproof, weathertight, insulated, well lighted, floored, heated, air conditioned and accessible to Owner, Architect, and their representatives; approved mobile units having equivalent facilities may be furnished and equipped with an adequate table, plan rack, desk, and chairs, and a non-pay telephone and fax for business use without charge. The office, equipment, and furniture shall remain the property of the Contractor.

2.04 PROJECT SIGN: If allowed by Owner, provide a sign of 3/4" x 4'-0" x 8'-0" (maximum size) exterior grade Douglas fir plywood face with a rigid frame, having painted background and lettered name of the project and names of Owner, Architect, and Contractor in accordance with sketches prepared by the Architect. Place no other signs on or adjacent to premises. Locate sign where directed. Obtain and pay for building permit for sign, if required by Code.

2.05 TOILET FACILITIES: Install temporary toilets for workmen and maintain toilets in a clean and sanitary condition. Locate as approved and connect to existing sewers when feasible. Chemical toilets may be used if approved by local Code.

2.06 UTILITY SERVICES: Send proper notices, make necessary arrangements, provide services required in care and maintenance of public utilities, and assume the responsibility concerning same for which Owner may be liable. Do all necessary enclosing or boxing in for protection of public utilities. Upon completion of the Work, remove enclosures, fill in openings in concrete or masonry with like materials, grout watertight, and leave in finished condition. **Utilities serving other Buildings shall remain in service at all times.**

2.07 TEMPORARY FACILITIES FOR WORK IN EXISTING BUILDINGS:

A. **Noise and Dust Control Barriers**: Prior to start of Work, coordinate with Owner as to location for barriers to ensure that no interference is caused to use of occupied portions of buildings.

1. Barriers. To the extent indicated or directed, provide dustproof and sound deadening barriers between new Work areas and occupied portions of the existing facilities before Work is commenced. Construct barriers of 1/2" thick gypsum wallboard or minimum 1/4" thick plywood on a wood frame, or equal. Provide a filler of 2" thick batt insulation and a ply of kraft paper. Seal joints in barriers and to existing work with a pressure sensitive masking tape. Maintain barriers in a clean, neat, dustproof and sound deadened condition until their need is fully satisfied and removal is approved or directed by Owner. Install doors with weatherstripping and locking hardware where directed by the Owner. Locate all barriers so as not to obstruct use of existing room doors, doors to existing stairways, or access to and through legal exitways.
2. Temporary Filters. Provide temporary filters over existing air conditioning or ventilating return air systems where dust or fumes may spread from new Work areas into existing buildings. Use approved commercial viscous-coated throwaway filters, or equal. Clean existing ducts and plenums that are soiled from lack of proper protection as directed, at no extra cost to Owner.

B. **Toilet Facilities**: Existing facilities are not to used by workmen on the Work or other personnel of the Contractor, unless otherwise designated by the Owner. The toilets are for City personnel only.

C. **Interior Traffic Signs**: Post signs in existing facilities to re-route occupants to legal exits where such have been closed with prior permission of Owner.

D. **Interior Traffic Control**: Provide foot traffic control barriers in corridors, passages, and lobbies to be used by occupants during the Work. Erect barriers before starting Work in the involved areas and relocate as the Work progresses. Allow for space outside the barriers sufficiently wide to permit foot traffic in both directions without congestion. Return barriers across working area to both sides of doorways that are to remain in use. Furnish barriers of wood or metal posts with weighted bases and connected by rope guards, or equivalent. Provide suitable warning signs on posts at both ends of barrier runs and as required elsewhere. Keep debris and materials out of walking areas.

E. **Temporary Utilities**: Owner will furnish electrical power, water, and gas from existing outlets designated by Owner without charge to Contractor for quantities used in the Work. Provide all temporary piping, fittings, wiring, and lighting necessary to supply utilities in sufficient quantities at locations required by the Work.

1. Electrical Power. Characteristics of current furnished by Owner is limited to that existing and available; if current of other characteristics or quantity is required by Contractor, he shall supply the power as necessary at no extra cost to Owner. Power for small tools and lighting may be taken from existing 12O-volt 6O Hz 1-phase convenience receptacles provided there is no disturbance to occupants and functions, cables and conductors do not prevent the closing of fire-labeled doors, and the load connected to any single or duplex outlet does not exceed 12 amperes. Total load connected to any circuit shall not exceed 25% of the circuit capacity as labeled in panelboard. At his expense, Contractor shall repair and make good all damage to existing electrical facilities caused by his use, as directed and approved.
2. Water. Owner will furnish water at existing outlets that do not interfere with normal operation of the facilities. In general, obtain water from outlets in janitor and similar utility rooms. If used, do not run hoses down corridors or across doorways in use by occupants. Provide temporary backflow prevention devices as required by Code or directed by Owner.
3. Gas. Limit the quantity used to the amount that causes no interference to existing gas-fired devices and equipment.

F. **Temporary Exterior Closures**: Provide as required to maintain the weatherproof and watertight integrity of the existing facilities.

G. **Rolling Interior Scaffolds**: Equip rolling scaffolds with pneumatic tires and rubber bumpers to prevent damage to walls and finishes. Except where an entire corridor or space is made available for Contractor's exclusive use, fixed and rolling scaffolds shall occupy no more than one-half the width of the area, and

shall not block doors and doorways in use by occupants. Protect floors with planks or similar material as required to prevent marring or damage.

H. **Control of Construction Water**: Provide impermeable floor coverings and suitable dams to prevent damage by the water used for the Work. Immediately clean up and remove all surplus water and water spilled in non-working areas.

2.08 REMOVAL OF TEMPORARY CONSTRUCTION: Remove all temporary facilities and other construction of temporary nature from site as soon as progress of the Work will permit in opinion of the Architect. When authorized, Contractor may move his facilities into designated areas of completed portions of the building. Upon completion of the Work, recondition and restore portions of site and building occupied by temporary facilities to acceptable condition.

END OF SECTION

SECTION 01600

MATERIAL AND EQUIPMENT

PART 1 - GENERAL

1.01 DESCRIPTION: This Section covers the general requirements for the materials and equipment for the Work. Specific requirements for materials and equipment are covered under other Sections of the Specifications.

A. Requirements In This Section:

1. Submittals for:
   a. Factory finish colors.
   b. Standard materials.
2. Proposed substitutions.
3. Materials, regarding:
   a. Equal materials.
   b. Optional materials.
   c. Plurality of terms.
   d. Factory finish colors.
4. Transporting and handling.
5. Storage and protection.

1.02 SUBMITTALS: Refer to Section 01300.

A. Submittals for Factory Finish Colors: Whether or not required elsewhere, submit color samples of materials specified to have a factory finish for selection and approval.

B. Submittal for Standard Materials: For the products specified by reference to standard or reference specifications, prepare and submit for approval a list of such materials or equipment by manufacturers' names and identifications to the extent requested by Architect.

1.03 PROPOSED SUBSTITUTIONS: Submit proposed substitutions prior to Bidding to the Architect for approval. Contractor will be notified of the approved substitutions by Addendum. Architect may require the submission of Drawings, Product Data, Samples, and other information in approved form for consideration of proposed substitutions.

A. Approval or Rejection of proposed substitutions is at Owner's discretion, whose judgement will be final and will include consideration of the following factors among others in comparing equality of proposed substitutions with indicated or specified requirements:

1. Quality of materials, structural strength, and details of construction or fabrication.
2. Performance and function, mechanically and technically.
3. Appearance and finish, or characteristics permitting required finish to be applied.
4. If proposed substitutions require altering the arrangement of adjoining or related Work, resulting arrangement must be equal in convenience and practicality to original arrangement.
5. Products equal in quality and utility are generally competitive products and are generally equal in price. If approval is requested for materials or equipment more economical than the specified products, Owner may require the specified products.
6. An inequality in availability of replacement parts or maintenance services may be a determining factor.
7. Code approvals and service history.

B. **Resubmittal of Proposed Substitutions**: Do not resubmit proposed substitutions that are rejected in modified form. Upon rejection of a proposed substitution, Bidder may submit another proposed substitution within the time limit stated above. If the second proposed substitution is rejected or not received by the Architect within the specified time, provide only the indicated and specified Work at no additional cost to Owner.

C. **Compliance**: Use of Approved Substitutions does not relieve Contractor from compliance with the Contract Documents. Contractor shall bear all extra expense resulting from approved substitutions where substitutions affect adjoining or related Work.

D. **Unauthorized Substitutions**: If substitute materials are installed without prior approval, remove all the unauthorized materials and install those indicated or specified, at no extra cost to Owner.

PART 2 - PRODUCTS

2.01 MATERIALS: Provide new materials and equipment unless otherwise indicated or specified.

A. **Equal Materials**: Any material, apparatus, equipment, or process indicated or specified by patent or proprietary name or name of manufacturer shall be deemed to be followed by "or equal as approved in writing by the Architect", unless it is specified that substitutions are not acceptable for a particular material, apparatus, equipment, or process item. Criteria will be the same as above in Paragraph 1.03 (A) 1-7.

B. **Optional Materials**: Where more than one proprietary brand name is specified, Contractor may provide any one of the materials or equipment specified. Before placing orders, advise Architect in writing of each named material,

appliance, or piece of equipment proposed for the Work and its intended use. Provide only one brand, kind, or make of material for each purpose throughout the Work not withstanding that similar material or equipment of two or more manufacturers may be specified for the same purpose.

C. **Plurality of Terms**: For all materials or equipment referred to in the singular number, it is intended unless otherwise limited that such references apply to as much material or equipment as is required to complete the Work.

D. **Factory Finish Colors**: Color of material specified to be furnished with factory finish is subject to Architect's approval. If available color is not approved, modify factory finish color to conform to the Architect's color instructions or provide another manufacturer's approved product which has an acceptable finish color, at no extra cost to Owner.

PART 3 - EXECUTION

3.01 TRANSPORTING AND HANDLING: Transport and handle all materials and equipment by methods that prevent damage, defacing, or overstressing. Lift the equipment, machinery and heavy fabricated products only at the lifting points designated by the manufacturer or, if not so designated, at the points or along the members designed to support the items when installed. Contractor shall bear all loss which may result from transporting and handling of materials and equipment and shall provide approved replacements for damaged or defective items at no extra cost to Owner. Conform handling procedures to applicable Codes.

3.02 STORAGE AND PROTECTION: Materials and equipment designed for permanent weather exposure may be stored off the ground without covering provided the equipment closures and seals are intact. Store all other materials and equipment off the ground and in dry, covered, weather-protected locations. Exercise special care to protect moisture-sensitive materials and other materials damaged by light (ultraviolet) or heat. Arrange adequate ventilation under protective covering to prevent condensation.

END OF SECTION

SECTION 01700

CONTRACT CLOSEOUT

PART 1 - GENERAL

1.01 DESCRIPTION: This Section covers general requirements for contract closeout.

A. Requirements In This Section:

1. Clean up and disposal.
2. Record Drawings.
3. Operation and maintenance manuals.
4. Maintenance materials.

1.02 SUBMITTALS under this Section shall conform to the Article "General Submittal Requirements" of Section 01300.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 CLEAN UP AND DISPOSAL: Requirements herein form a part of all other Sections of the Specifications and shall be coordinated with such additional clean up and disposal requirements as may be specified in other Sections.

A. General: Leave the entire Work broom clean except where vacuum clean or other condition is specified.

1. Control During The Work. Take precautions to avoid spread of dust, dirt, debris, water, paint, cement, sprayed materials, and other substances about the site or to adjacent property. Clean up splatterings or spills of materials at time of occurrence. Remove dirt, debris, waste, and rubbish frequently, and do not allow to accumulate in the structure or on the site. Do not store flammable or toxic materials in the structure.

B. Contractor's Supervision: Inform all trades and workmen of the cleaning up requirements specified, and monitor where Work is in progress to ensure full compliance with all clean up requirements in this and other Sections.

C. Architect's Inspection: Give the Architect at least 3 working days advance notice of readiness for inspection as each phase or area of Work is completed for occupancy. Correct any deficient cleaning operations, as determined and directed by Architect.

D. **Disposal**: The Contractor and all Sub-Contractors shall be required to recycle as much material as possible (per Owners requirements) on this Project prior to disposing in a disposal area. Do not place rubbish or waste material in fills or backfills. Remove debris, rubbish, and waste material from Owner's property to a lawful disposal area and pay all hauling and dumping charges. Conform to pertaining Federal, State, and local laws, ordinances, rules, regulations, and orders.

E. **Final Clean Up - Exterior**: Clean surfaces of construction and site including fixtures, walls, soffits, floors, hardware, roofs, window and opening ledges and sills, horizontal projections, steps and platforms, walkways, rails and all like surfaces, and adjoining private and public property to the extent soiled by the Contractor's operations.

F. **Final Clean Up - Interior**: Leave surfaces in clean condition with all dust, dirt, stains, handmarks, paint spots, droppings, and other blemishes and defects completely removed.

1. Hard Floors: Wash and dry concrete, tile, elastomeric, and similar floors, free of streaks or stains.
2. Resilient Flooring: Freshly wax and buff as specified in Division 9.
3. Resilient Bases: Clean off adhesive smears and wipe clean.
4. Carpet: Vacuum clean free of lint, soil, and dust.
5. Bare and Painted Surfaces: Clean of dust, lint, streaks, or stains.
6. Tile Walls: Clean and polish.
7. Stone Masonry: Clean and polish.
8. Wall Covering: Remove all adhesive on surfaces.
9. Hardware and Metal Surfaces: Clean and polish all exposed surfaces using noncorrosive and nonabrasive materials.
10. Glass: Wash and polish both sides, and leave free of dirt, spots, streaks, and labels. Clean and polish mirrors.
11. Ceilings: Clean and free of stains, handmarks, and defacing.
12. Fixtures and Equipment: Clean and polish mechanical and electrical fixtures and like items. Leave lighting fixtures free of dust, dirt, stains, or waste material. Clean and service equipment and machinery, ready for use.

G. **Surfaces Not Mentioned**: Clean according to the intent of this Section and as required for Architect's approval.

H. **Contaminated Earth or Materials**: Final clean up operation includes removal and disposal of earth that is contaminated or unsuitable for support of plant life in planting areas, and filling of resulting excavations with suitable soil as directed and approved. Contaminated areas include those used for disposal of waste concrete, mortar, plaster, masonry, and similar materials, areas in which washing out of concrete and plaster mixers or washing of tools and like cleaning operations have been performed, and all areas that have been oiled, paved, or

chemically treated. Do not dispose of waste oil, solvents, paints, solutions, or similar material of a penetrating nature by depositing or burying on Owner's property.

3.02 RECORD DRAWINGS:

A. **Record Set During The Work**: At site, maintain at least one set of Drawings as a Field Record Set; apportion copies to the various Subcontractors for recording of their portions of the Work. Also maintain at least one copy of all Addenda, Modifications, approved submittals, correspondence, and transmittals at site. Keep Drawings and data in good order and readily available to Architect, Owner, and their representatives.

B. **Changes**: Clearly and correctly mark Record Drawings to show all changes made during the construction process at the time the changed Work is installed. No such changes shall be made in the Work unless authorized by a Modification or by specific approval of deviations or revisions in submittals.

C. **Final Record Drawings**: Prior to Substantial Completion, Architect will order for Contractor, at Contractor's expense, one complete set of Drawings, lncluding Clarification and Interpretation Drawings and the Drawings issued by Addenda, recorded on CAD Files or printed as hard copy prints if required to do so by the Architect or Owner.

D. **Preparation of Final Record Drawings**: Contractor shall transfer all recorded changes in the Work indicated on the Field Record Set to a reproducible Cad File. Changes for all trades shall be neatly and clearly drawn and noted in ink by skilled draftsmen, and shown technically correct.

E. **Approval**: Prior to Architect's inspection for Substantial Completion, submit both the Field Record Set and the Final Record Drawings to the Architect for review, and make such revisions as may be necessary for Final Record Drawings to be a true, complete, and accurate record of the Work in the Architect's opinion.

F. **Conferences**: Contractor and any of the Subcontractors involved shall attend post-construction conferences to clarify the Final Record Drawings as may be required by Architect, at no extra cost to Owner.

3.03 MANUALS: Obtain data from the various manufacturers and submit instruction, operation, and maintenance manuals to the extent required under other Sections of the Specifications.

A. **Contents**: Each manual shall have an index listing the contents. Information in the manuals shall include not less than (a) general, introductions and overall equipment description, purpose, functions, and simplified theory of operation, (b) specifications, (c) installation instructions, procedures, sequences, and precautions, including tolerances for level, horizontal, and vertical alignment,

(d) grouting requirements including grout spaces and materials, (e) list showing lubricants for each item of mechanical equipment, approximate quantities, needed per year, and recommended lubrication intervals; where possible, the types of lubricants shall be consolidated with equipment manufacturers' approval in order to minimize the number of different lubricants required for maintenance, (f) startup and beginning operation procedures, (g) operational procedures, (h) shut down procedures, (i) short and long term inactivation procedures, (j) repair, maintenance, and calibration instructions, (k) parts lists and all spare parts recommendations, (l) lists of all special tools, instruments, accessories, and special lifting and handling devices required for periodic maintenance, repair, adjustment, and calibration, and (m) other information as may be specified or required for approval.

B. **Format and Binding**: Include drawings and pictorials to illustrate the text as necessary to fully present the information. Where the information includes a family of similar items, strike out the inapplicable information or identify applicable portions by heavily weighted arrows, boxes, or circles. Bind each manual in sturdy covers labeled to indicate the equipment to which it applies. Bind manuals less than one inch thick in standard three-ring binders; others shall have sturdy covers secured with removable fasteners and, when more than two inches thick, shall be bound in locking-bar post binders with rigid covers.

C. **Manual Submittals**: Unless otherwise specified, each submittal shall include two copies of each manual, one of which will be returned to the Contractor marked to show the required corrections or approval. When approved, deliver four copies to Architect unless otherwise specified.

3.04 MAINTENANCE MATERIALS: Furnish and deliver all the special tools, instruments, accessories, spare parts, and maintenance materials required by the Contract Documents, and furnish and deliver the special tools, instruments, accessories, and the special lifting and handling devices shown in the instruction manuals approved above. Unless otherwise specified or directed, deliver the items to the Owner, with the Contractor's written transmittal accompanying each shipment, in the manufacturer's original containers labeled to describe the contents and the equipment for which it is furnished. Deliver a copy of each transmittal to Architect for record purposes.

END OF SECTION

SECTION 01740

WARRANTIES AND GUARANTEES

PART 1 - GENERAL

1.01 DESCRIPTION: This Section covers general requirements for written warranties and guarantees required by the Contract Documents. Submission to and approval by the Owner of the warranties and guarantees is a prerequisite to final payment under the Contract.

1.02 MANUFACTURERS' WARRANTIES AND GUARANTEES: Deliver all the manufacturers' warranties and guarantees required by Contract Documents, with Owner named as the beneficiary. In addition, for all equipment and machinery, or components thereof, bearing a manufacturers' warranty or guarantee that extends for a longer time period than the Contractor's warranty or guarantee, deliver the manufacturers' warranties or guarantees in same manner. Refer to Section 01300, Paragraph "Equipment Data", for the submission of manufacturers' warranty or guarantee data.

1.03 FORM OF WARRANTY OR GUARANTEE: All written warranties and guarantees, except manufacturers' standard printed warranties and guarantees, shall be submitted on the Contractor's, Subcontractor's, material supplier's, or manufacturer's own letterhead, addressed to the Owner. All warranties and guarantees shall be submitted in duplicate, and in the form shown on the following page, signed by all pertinent parties and by Contractor in every case, with modifications as approved by Owner to suit the conditions pertaining to the warranty or guarantee.

1.04 SUBMISSION OF WARRANTIES OR GUARANTEES: The Contractor shall collect and assemble all written warranties and guarantees into a bound booklet form, and deliver the bound books to Architect for delivery to the Owner's attorney for final review and approval.

WARRANTY/GUARANTEE

FOR_____WORK

We, the undersigned, hereby warranty and guarantee that the parts of the Work described above which we have furnished and/or installed for:

CITY OF TORRANCE
PERSONNEL BLDG. & LIBRARY FACILITIES
TORRANCE, CALIFORNIA

is in accordance with the Contract Documents and that said Work as installed will fulfill or exceed all of the Warranty and Guarantee requirements. We agree to repair or replace Work installed by us, together with any adjacent Work which is displaced or damaged by so doing, that proves defective in workmanship, material, or operation within a period of _____ _____( ) year(s) from the date of final acceptance of by Owner or from the Date of Certificate of Substantial Completion, whichever is the earlier, ordinary wear and tear and unusual abuse or neglect excepted.

In the event of our failure to comply with the above-mentioned conditions within a reasonable time period determined by the Owner, after notification in writing, we, the undersigned, collectively and separately do hereby authorize the Owner to have said defective Work repaired and/or replaced and made good, and agree to pay to the Owner upon demand all moneys that the Owner may expend in making good said defective Work, including all collection costs and reasonable attorney fees.

Date:_____ _____
(Subcontractor, Sub-subcontractor, Manufacturer or Supplier)
By_____
Title_____
State License No._____

Date:_____ _____
(Contractor)
By_____
Title_____
State License No._____

Local Representative to be contacted for maintenance, repair and/or replacement service:

Name:_____
Address:_____
Phone Number:_____

END OF SECTION

SECTION 01900

MISCELLANEOUS WORK

PART 1 - GENERAL

1.01 DESCRIPTION. The requirements of all other Sections of Division 1 apply to this Section. Provide various materials and perform all miscellaneous operations as indicated, specified, and required. This Section applies to all other Sections of the Specifications.

A. Work In This Section: Principal items include:

1. Miscellaneous demolition, cutting, alterations, and repairs to the existing facilities as shown, specified, and required to complete the Work.
2. Relocation and reinstallation of existing construction and finish as shown.
3. Salvage, storage, and protection of existing items to be reinstalled.
4. Salvage and delivery to Owner of designated removed items as directed.

1.02 SUBMITTALS: Refer to Section 01300 for procedures.

A. Schedule of Work: Perform Work in existing facilities during such hours and by methods as are approved by Owner. Submit proposed schedules itemizing dates and hours that the various items of Work in existing facilities will be started and completed. Owner reserves the right to modify proposed schedules to eliminate conflicts and ensure use of existing facilities during the Work. Exactly follow the schedule as finally approved by Owner. No extra payment will he made to the Contractor for the Work required to be performed during night, Saturday, Sunday, or holiday hours. Revise and resubmit schedules when timing or sequence changes occur or are ordered by Owner.

1.03 JOB CONDITIONS:

A. General: Coordinate Work among the trades and with Owner to assure the correct sequence, limits, methods, and times of performance. Arrange the Work to impose minimum hardship on operation and use of the facilities. Install protection for existing facilities, contents, and new Work against dust, dirt, weather, damage, and vandalism, and maintain and relocate as Work progresses.

B. Hazardous Waste Removal: During inspection and demolition work if any hazardous materials are found the Contractor shall immediately notify the Owner and proper agencies and have the materials removed in an approved manner.

C. Access: Confine entrance and exit operations to access routes designated by the Owner.

D. **Existing Portable Items**: Owner will remove portable equipment, furniture, and supplies from involved existing areas prior to start of Work therein. Cover and protect remaining items.

E. **Existing Conditions**: Intent of Drawings is to show existing site and facility conditions with information developed from the original construction documents, field surveys, and Owner's records, and to generally show the amount and type of demolition and removals required to prepare existing areas for new Work.

F. **Verification of Conditions**: Perform a detailed survey of all existing site and building conditions pertaining to the Work before starting Work. Report to the Architect all discrepancies or conflicts between Drawings and actual conditions in writing for clarification and instructions and do not perform Work where such discrepancies or conflicts occur prior to receipt of Architect's instructions.

G. **Special Noise Restrictions**: Exercise caution and care to prevent generation of unnecessary noise and keep noise levels to the minimum possible. When ordered by Owner or Architect, immediately discontinue such methods that produce noise disruptive or harmful to the facility functions and occupants, and perform Work by unobjectionable methods. Equip air compressors, tractors, cranes, hoists, vehicles, and all other internal combustion engined equipment with "residential" grade mufflers. Muffle unloading cycle of compressors. Remove from the site any equipment producing objectionable noise as determined by Owner or Architect.

H. **Shoring and Bracing**: Provide support, shoring, and bracing required to preserve the structural integrity and prevent collapse of existing construction that is cut into or altered as a part of the Work.

I. **Overloading**: Do not overload any part of the structures beyond a safe carrying capacity by placing of materials, equipment, tools, machinery, or any other item thereon.

J. **Building Security**: Secure building entrances and exits with locking or another approved method in accordance with Owner's instructions.

K. **Safeguarding of Owner's Property**: Assume care, custody, and responsibility for safeguarding all of Owner's property of every kind, whether fixed or portable, remaining in rooms and spaces vacated and turned over to Contractor by the Owner for his exclusive use in performing the Work until the Work therein or related thereto is completed and the rooms or spaces are re-occupied by Owner. Furnish all forms of security and protection necessary to protect the Owner's property. Regardless of cause, Contractor shall repair, replace, or otherwise acceptably make good all of the Owner's property under his care, custody, and safeguarding that is damaged, injured, lost, stolen, or missing from the time each such room or space is turned over to Contractor for the Work until re-occupied by Owner, at Contractor's expense and as directed by the Owner.

1. Property Inventories: Owner's property that Owner intends to remove will be removed at no cost to Contractor before a room or space is vacated for the Work. Prior to start of Work in each room or space, Owner and Contractor shall prepare a detailed initial written inventory of Owner's property remaining therein and condition thereof, including equipment and telephone instruments, and each party shall retain a copy of the inventory dated and signed by both. In same manner, prior to Owner's re-occupancy of each such room or space the parties shall again inventory Owner's property therein and all discrepancies between the inventories shall be the Contractor's responsibility as specified above.
2. Covering and Clean-Up: Cover and protect all surfaces of rooms and spaces turned over for the Work, including the Owner's property remaining therein, as required to prevent soiling or damage by rust, dirt, water, fumes, or otherwise, and protect other areas where Work is performed in the same manner, all as is deemed adequate by the Owner. Prior to Owner's re-occupancy of any such room or space, clean all surfaces including Owner's property in accordance with Section 01700 and other cleaning instructions as may be specified in other Sections.

L. **Use of Owner's Telephones**: Do not use nor allow anyone other than the Owner's employees to use telephone in rooms and spaces turned over to Contractor for the Work except in the case of a bona fide emergency. Install temporary dial locks on telephone instruments to prevent all unauthorized use, or arrange and pay for temporary removal and reinstallation of instruments. Reimburse to the Owner all telephone toll charges originating from the telephones in such rooms and spaces except those arising from emergencies or use by Owner's employees.

M. **Welding**: Conform to following requirements where welding is performed in or on existing facilities.

1. Protection During Welding: Conform to Title 8, CCR. In addition, protect occupants and the public with portable solid vision barricades around locations where welding is performed plus signs warning against looking at welding without proper eye protection, or equivalent.
2. Welding Smoke Control: Attention is directed to existing smoke detectors. Perform welding by methods that produce the minimum feasible smoke and fumes. Furnish portable type smoke collection equipment and supplementary ventilating equipment as required to prevent smoke and fume nuisances. Notify the Owner at least 48 hours in advance if a temporary deactivation of any smoke detector is required to prevent false alarms from welding operations. Owner's personnel will deactivate the detectors only for the period that welding is actually in progress.
3. Fire Extinguishers: Maintain a fully charged UL-labeled minimum 10-pound ABC fire extinguisher at every location where welding is performed within the facilities.

4. Fire Prevention: Before welding, examine existing construction and backing for combustible materials and finishes and for conditions where heat migration in metals may bring adjoining materials to ignition temperature. Use positive fire prevention measures including the temporary removal and reinstallation of combustible materials, installation of temporary shields and/or heat sinks, and other necessary means. When actual field conditions are such that positive fire prevention measures cannot be achieved, notify Architect and do not proceed with the involved Work until receipt of Architect's instructions.

N. **Protection of Floors**: Exercise caution to protect floor surfaces and coverings from damage. Equip mobile equipment with pneumatic tires.

PART 2 - PRODUCTS (Not applicable to this Section)

PART 3 - EXECUTION

3.01 DEMOLITION, REMOVALS, ALTERATIONS, AND REPAIRS:

A. **Basic Requirement**: Restore all new and existing construction and improvements that are cut into, altered, damaged, relocated, reinstalled, or left unfinished by demolition and removals as a result of the Work to original condition or to match the adjoining Work and finishes and as indicated, specified, directed, and required. Workmanship and materials shall conform to applicable provisions of other Sections of Specifications. Provide new fasteners, connectors, adhesives, and other accessory materials as required to complete approved reinstallations and restorations.

B. **Extent**: Perform demolition and removals to extent shown plus such additional demolition or removal as is necessary for completion even though not indicated. More or less of existing construction may be demolished or removed when such variation will expedite the Work and reduce cost to Owner, subject to approval.

C. **Removals and Demolish**: Carefully demolish and or remove as indicated on Drawings. Carefully remove Work to be salvaged or reinstalled and store under cover.

1. Walls, Partitions, and Ceilings: Demolish or remove completely by cutting down and not by tumbling, throwing, or dropping.
2. Concrete: Saw with power saw, or chip where sawing is not practicable, to prevent spalling of concrete to remain. Cut off reinforcing bars, except where bonded into new concrete or masonry, and paint ends with bituminous paint before enclosing.
3. Masonry: Cut back to joint lines and remove old mortar. Allow space for repairs to backing where applicable.
4. Plaster: Cut back to sound plaster on straight lines, and back-bevel edges of remaining plaster. Trim existing lath and prepare for new lath.

5. Roofing: Remove as indicated or required, including insulation, flashings, and related items connected thereto. At penetrations through existing roofing, trim cut edges back to sound roofing with opening of minimum size necessary for new Work.
6. Cabinets, Casework and Woodwork: Demolish, and or carefully remove and restore existing as indicated on Drawings, completely by cutting down and not by tumbling, throwing, or dropping.
7. Sheet Metal Flashings and Work: Remove back to a joint, lap, or connection. Secure loose or unfastened ends and make watertight.
8. Glass: Remove broken or damaged glass and clean the rebates of old setting materials.
9. Gypsum Wallboard: Cut back on straight lines to undamaged surfaces, with at least two opposite cut edges centered on supports.
10. Acoustical Ceilings: Dismantle ceilings and remove hanger wires.
11. Tile: Remove back to sound tile and backing on joint lines where portions are to remain.
12. Flooring: Completely remove flooring and clean the backing of old cement or adhesive.
13. Miscellaneous Items: Remove items not mentioned but required to be removed in such manner as will minimize damage to Work to remain.

D. Patching, Repairing, and Finishing:

1. Concrete: Keep cut edges damp for 24 hours and scrub with a neat portland cement mortar just before new concrete is placed; epoxy adhesive may be used in lieu of cement mortar. Finish new concrete to match existing. Use 3,000 psi concrete for repairs and slabs on grade. At cut concrete edges to remain exposed, apply adhesive and restore with minimum 3/4" thick cement mortar finished to match adjoining surfaces.
2. Openings To Be Closed: Trim edges square and straight, and dampen and grout scrub or treat with adhesive as specified above for cut concrete edges. Install 3,000 psi concrete. Provide reinforcing as required to match existing concrete. Where installation of concrete is impracticable, fill openings with dry-packed non-shrink grout. Finish to match adjoining surfaces.
3. Landscaping: The Contractor shall repair or replace sprinkler and irrigation items and plants that are affected by the remodel. Contractor shall coordinate with the Architect as to what Work is required to be done.
4. Masonry: Repair with matching masonry materials, reinforcement, jointing, and tooling.
5. Metal Items: Grind cut edges to remain exposed smooth and rounded.
6. Lath and Plaster:
    a. Lath: Lath areas to be patched with matching lath as required. Lap new lath 6" over existing and wire-tie new and existing lath edges at 6" intervals. Restore paper backings as required, shingled into existing.
    b. Plaster: Apply bonding agent on cut edges of existing plaster.

Apply 3-coat plaster patching of type, thickness, finish, color, and texture to match existing plaster.

7. Roofing: Cut back to sound undamaged materials and re-secure all cut edges. Apply new roofing materials in repair areas of same type and finish as existing, connected to existing roofing with waterproof connections.
8. Woodwork: Prepare wood to be refinished according to Section 09900 Painting. Patch with new matching or undamaged removed materials. The restored items shall be in a like new condition per Architects approval.
9. Sheet Metal: Restore removed or damaged sheet metal items as required or directed by Architect. Roof flashing materials shall be products of or be approved by roofing manufacturer.
10. Waterproofing Membranes: Trim back to sound undamaged membrane, seal cut edges, and apply new waterproofing lapped 36" minimum over existing membranes using matching materials and methods.
11. Glass: Install new matching glass.
12. Gypsum Wallboard: Refasten cut edges of existing board. Apply patches with at least two opposite edges centered on supports and secure at 6" centers. Tape and finish joints and fastener heads. Make patching non-apparent when painted.
13. Acoustical Ceilings: Conform to requirements indicated, specified herein, to applicable requirements of Section 09510, and as necessary to match existing conditions.
14. Flooring: Completely remove flooring and clean off old cement as specified. Install new flooring of color, pattern, and type to match existing floors. If an approved match cannot be made between existing and new flooring, remove all flooring in involved room or space and install new flooring at no extra cost to Owner. Clean and wax all new and existing resilient tile flooring in alteration areas and patched areas, and adjoining areas as directed. Use brand of wax in regular use by Owner.
15. Painted Surfaces: Prepare patched areas and refinish as specified in Section 09900.
16. Security System: The Contractor shall coordinate with the security personnel and Architect as to what additional equipment is required to expand the system to its new requirements and have them installed and tested to be compatible with existing system.
17. Miscellaneous Items: Patch and repair as required and approved.

3.02 PREPARATION OF EXISTING WORK:

A. **Holes**: Drill holes through existing concrete or masonry for new conduit and/or piping, and do not jack-hammer.

B. **Sandblasting**: Work includes sandblasting of existing surfaces to receive new materials secured by cementitious, adhesive, or chemical bond (such as concrete, toppings, elastomeric coatings, plaster, mortar, etc.), and the sandblasting of other surfaces as shown, specified, directed, or required for proper preparation of

surfaces. Completely remove existing finish, stains, oil, grease, bitumen, penetrated mastics and adhesives including primers, and all other substances deleterious to the bond or connection of new materials, and expose clean sound surfaces. Use wet sandblasting for interior surfaces, and for exterior surfaces where directed or necessary to prevent creation of a dust nuisance.

C. **Metal Framework Painting**: If necessary, wire brush clean and paint scarred areas, welds and rust spots on the visible surfaces. Touch up galvanized surfaces with galvanized repair paint applied in accordance with the manufacturer's instructions. In areas where touch-up painted surfaces are to be exposed, apply the paint to blend into the adjacent surfaces in a manner that will minimize visual discontinuity in the coatings.

3.03 SALVAGE: Existing items not to be reused or reinstalled that Owner intends to retain will be designated by Owner prior to start of removals in the pertaining area. Carefully remove, salvage, box or bundle as approved, and deliver such items to storage at site as Owner directs.

3.04 DISPOSAL: Conform to Section 01700. Dispose of removed material off the site except items to be salvaged or reinstalled. Promptly remove waste and debris and do not accumulate within facilities or on site.

END OF SECTION

SECTION 02513

ASPHALTIC CONCRETE PAVING

PART 1 - GENERAL

1.01 DESCRIPTION: Division 1 applies to this Section. Provide for the patch and/or repair of asphaltic concrete paving complete as indicated, specified, and required.

A. Work In This Section: Principal items include:

1. Subgrade preparation.
2. Soil sterilization.
3. Aggregate base course.
4. Prime coat.
5. Asphaltic concrete paving.
6. Fog seal coat.

B. Related Work Not In This Section:

1. Site preparation and earthwork, including rough grading.
2. Portland cement concrete curbs, drives, and paving.
3. Pavement striping, bumpers and signage.

1.02 QUALITY ASSURANCE:

A. Reference Specifications: Conform to following reference specifications to the extent specified. The term "Engineer" in the reference specifications shall be understood to mean "Architect". Requirements of measurement or payment in the reference specifications are hereby deleted; include Work of this Section under the Contract Sum for entire Work.

1. SSPWC Spec. The "Standard Specifications for Public Works Construction", Current Edition.
2. State Standard Spec. Standard Specifications of the California Business and Transportation Agency, Dept. of Public Works, Div. of Highways, Current Edition.

B. Proportioning of Plant Mix: Determine exact quantities of bituminous binder and mineral aggregate required to produce a mix equal to mix quality specified.

1.03 SUBMITTALS: Refer to Section 01300 for procedures.

A. Product Data: Submit the manufacturer's technical Product Data and application directions for soil sterilizer.

B. **Certificates and Statement**: Submit certificates from asphalt concrete products suppliers that quality, gradation, proportions, and mixing of materials supplied under this Section meet the requirements specified. Materials not conforming to specified requirements are defective. Reject defective materials whether or not in place. Submit a statement supported by weight tickets showing the following information:

1. Calculations showing minimum amount of asphaltic concrete materials required for total area to be paved.
2. Amounts actually installed.

1.04 JOB CONDITIONS: Provide protection and repair adjacent surfaces and areas which may be stained or damaged as a result of installation. Protect installed paving Work until final acceptance. Repair or replace damaged or defective paving to original specified condition.

1.05 WARRANTY: Refer to Section 01740. Furnish to Owner a written warranty for one year, except warrant against weed or plant growth through paving for two years. Condition warranty to cover any portion of asphaltic concrete in which creeping, shoving, cracking, raveling, or softening occurs or in which weed growth occurs, and all depressed areas which collect water due to improper grading, placing, or defective materials during the warranty period. Repairs include the restoration of adjoining or applied materials and finish items.

PART 2 - PRODUCTS

2.01 MATERIALS:

A. **Soil Sterilizer**: Standard product non-selective borate-chlorate type sterilizer having minimum 46% boron-trioxide equivalent, as approved.

B. **Aggregate Base Course**: State Standard Spec Section 26, Class 2, 3/4" gradation maximum.

C. **Prime Coat**: SSPWC Spec Subsection 302-5.2, Grade SC-250 or SC-70, as approved.

D. **Asphaltic Concrete Surface Course**: SSPWC Spec Subsection 203-6, Type I-C2-PG 70-10.

E. **Fog Seal Coat**: Asphalt emulsion SS-1, State Standard Spec Section 37.

PART 3 - EXECUTION

3.01 CONSTRUCTION:

A. **Subgrade Preparation**: Conform to SSPWC Spec Subsection 301-1, top 6" compacted to minimum 90% relative compaction at any location. Maintain the subgrade 2% above the optimum moisture content until covered with subsequent materials.

B. **Soil Sterilizing**: Apply sterilizer according to manufacturer's directions using the dry or aqueous spray process, minimum quantity of dry undiluted material per 100 square feet of paving conforming to manufacturer's directions for control of medium and heavier weed growth and to meet warranty requirements. If necessary, apply supplemental watering to fully dissolve all sterilizer and obtain 2" to 3" penetration into the subgrade. Reroll treated subgrade to specified compaction. Do not apply sterilizer during rain or windy weather and prevent contamination of landscaping areas.

C. **Aggregate Base Course**: Conform to SSPWC Spec Subsection 301-2. Place base course in one or two layers as required to produce 95% relative compaction. Deliver to site as a uniform mixture. Construct to indicated compacted thickness.

D. **Prime Coat**: Conform to SSPWC Spec Subsection 302-5.2, quantity per square yard as approved. Apply on all completed aggregate base course.

E. **Asphaltic Concrete**: Conform to SSPWC Spec Subsection 302-5 including requirements for smoothness and density. Apply asphaltic cement or emulsion paint binder on abutting concrete. Construct to minimum compacted thickness indicated.

F. **Drainage Test**: Flood paving with water when rolling is completed and asphaltic paving is cool. Remove paving in improperly draining areas and install properly draining paving as directed, at no extra cost to Owner. Correction of low areas by skin patching is not acceptable.

G. **Fog Seal Coat**: Conform to State Standard Spec Section 37. Spray apply at rate of 0.05 to 0.10 gallons per square yard, the exact quantity as required to fully seal the paving surface, as approved. Cover and protect adjoining surfaces from staining.

END OF SECTION

SECTION 02579

PAVEMENT MARKING, TRUNCATED DOMES AND SIGNAGE

PART 1 - GENERAL

1.01 DESCRIPTION: Division 1 applies to this Section. Provide pavement marking, truncated domes and signage as indicated, specified, and required.

A. Work In This Section: Principal items include:

1. Pavement markings.
2. Truncated domes.
3. Accessible signage.
4. Wheel bumpers, reinstall the existing in new locations.

PART 2 - PRODUCTS

2.01 TRAFFIC PAINT: Type specially manufactured for pavement traffic line markings by Dunn Edwards, Wellborn, Sherwin-Williams, Devoe, Sinclair, Pittsburg Paint, Behr, or equal, white color unless otherwise directed.

2.02 TRUNCATED DOMES: Provide truncated domes by Hanover Architectural Products (717) 637-0500 or Disability Devices, Inc., (714) 437-9237 or equal installed where indicated on drawings. The domes are to be ADA compliant and installed in accordance with manufacturers recommendations and specifications.

PART 3 - EXECUTION

3.01 PAVEMENT MARKING AND STRIPING: Paint traffic and parking lines as indicated. Machine-apply paint in accordance with the directions of the paint manufacturer. Unless otherwise shown, paint lines 4" wide and as required to achieve complete opacity. Paint directional arrows, numbering, and lettering in similar fashion and with same paint. Produce completed painting and striping free of holidays and whiskers. Be responsible for paint droppings and overspray. Completely remove droppings and repair injured surfaces in a satisfactory manner. Paint disabled lines and markings a minimum of 3” wide with blue color equal to Color No. 15090 per Federal Specification 595B, disabled parking symbols, stall striping, debarkation aisles and path of travel lanes to the extent required by the Code and as enforced by the local jurisdiction where indicated. Parking spaces for the disabled shall be marked according to CBC Section 1129B.5. The tactile warning lines shall be in conformance to CBC Section 1133B.8.3 and 1133B.8.4.

3.02 ACCESSIBLE SIGNAGE: Set in accordance with Districts Standards and as detailed on drawings, provide reflectorized International Symbol of Accessibility signs and required text with porcelain enamel finish, and steel frame. Mount and finish required by Building Code. Locate signage and designed disabled stalls where indicated on site. Post mounted and wall mounted signs shall be fabricated from 16 gage enameling iron with

porcelain enamel finish. Mount signs to posts with minimum two 3/16" diameter round head bolts with tamperproof nuts, galvanized. Posts are 2" diameter galvanized steel pipe weighing a minimum of 3.65 lbs per foot and conforming to ASTM A53, Schedule 40 or 2" x 2" galvanized steel tubing, weighing a minimum of 4.31 lbs per foot and conforming to ASTM A500, Grade B, 3/16" thick wall thickness.

END OF SECTION

SECTION 03100

FORMS

PART 1 - GENERAL

1.01 DESCRIPTION: Division 1 applies to this Section. Provide forms for all Work constructed of cast-in-place concrete as indicated, specified, and required.

A. Related Work Not In This Section:

1. Furnishing and placing reinforcing for cast-in-place concrete.
2. Furnishing, placing, finishing, and curing of cast-in-place concrete.
3. Placing of embedded anchor bolts and inserts.
4. Screeds for slabs.

1.02 QUALITY ASSURANCE: Construct forms conforming to the tolerances specified in ACI 301, "Specifications for Structural Concrete for Buildings", as applicable, unless exceeded by requirements of regulatory agencies or otherwise indicated or specified.

1.03 SUBMITTALS: Refer to Section 01300 for procedures.

A. Shop Drawings: Submit Shop Drawings showing form pattern layouts of all exposed exterior and interior concrete dimensioned to precisely locate grooves, form panel jointing, and similar features. Review and approval will not include form strength and adequacy.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING: Deliver materials in timely manner to ensure uninterrupted progress. Store materials by methods that prevent damage and permit ready access for inspection and identification.

PART 2 - PRODUCTS

2.01 MATERIALS: Furnish materials conforming to the following requirements:

Form lumber:	WCLIB "Construction" grade or better, WWPA No. 1 or better, or equal.
Form plywood:	PS 1-Current Edition, Group I, Exterior B-B Plyform or better, minimum 5-ply and 5/8" thickness, grade marked, not mill oiled. Plywood having medium or high density overlay is acceptable.
Form ties:	Prefabicated rod, flat band, wire, or internally threaded disconnecting type, not leaving metal within -1/2" of concrete surface.
Form coating:	Resin type coating free of oil, silicone, wax, and non-drying material, not grain-raising.

PART 3 - EXECUTION

3.01 FORM ERECTION AND REMOVAL: Conform to ACI 301 and ACI 347 "Recommended Practice for Concrete Formwork" except as exceeded by requirements of Code, regulatory agencies, or herein.

A. **Construction**: Coat forms with the specified resin coating, not form oil. Construct forms to exact shapes, sizes, lines, and dimensions required to obtain level and plumb and straight surfaces. Provide openings, offsets, keys, anchorages, recesses, reglets, moldings, chamfers, blocking, screeds, drips, bulkheads, and all other required features. Make forms removable without hammering or prying against concrete. Space forms apart with metal spreaders. Construct forms to accurate alignment, location and grades, and provide against sagging, leakage of concrete mortar, or displacement occurring during and after placing of concrete. Coordinate installation of inserts in forms according to Shop Drawings and instructions of other trades.

B. **Corners and Angles**: Provide 3/4" by 3/4" beveled chamfer strips for concealed concrete corners and angles unless otherwise indicated. Form exposed concrete corners and angles square unless otherwise indicated.

C. **Reglets and Rebates**: Form all required reglets and rebates to receive flashing, frames, and other equipment. Obtain dimensions, details, and precise positions from related trades and form concrete accordingly.

D. **Form Joints**: Fill joints to produce smooth surfaces, intersections and arrises. Use polymer foam or equivalent fillers at joints and where forms abut or overlap existing concrete to prevent leakage of mortar.

E. **Recesses, Drips, and Profiles**: Provide smooth milled wood or preformed rubber or plastic shapes of types shown and required.

F. **Cleanouts and Cleaning**: Provide temporary openings in wall forms for cleaning and inspection. Clean forms and surfaces to receive concrete prior to placing.

G. **Re-Use**: Clean and recondition form material before re-use.

I. **Time of Form Removal**: Do not remove forms until the concrete attains sufficient strength to support its own weight and all superimposed loads.

3.02 MISCELLANEOUS CONCRETE WORK: Provide forms for concrete areaways, cast-in-place valve boxes, pits, bases, and other miscellaneous concrete as shown and required to complete all Work. Conform to applicable requirements herein.

3.03 FIELD QUALITY CONTROL: Refer to Section 01400.

A. **Supervision**: Perform Work of this Section under the supervision of a capable concrete form superintendent.

B. **Continuous Inspection**: Obtain inspection and approval of forms before placing structural concrete.

END OF SECTION

SECTION 03200

CONCRETE REINFORCEMENT

PART 1 - GENERAL

1.01 DESCRIPTION: Division 1 applies to this Section. Provide reinforcing steel complete as indicated, specified and required.

A. Work In This Section: Principal items include:

1. Reinforcing bars and mesh for cast-in-place concrete.
2. Furnish and deliver to site steel bar reinforcing for masonry.

B. Related Work Not In This Section:

1. Reinforcement for epoxy concrete.
2. Installation of reinforcing bars in masonry.

1.02 QUALITY ASSURANCE:

A. Source Quality Control: Refer to Section 01400 for general testing requirements and to following paragraphs for specific procedures. Testing Laboratory shall perform following conformance testing shall select the test samples of bars, ties, and stirrups from material at the site or from place of distribution, each sampling including at least two 18" long pieces, and perform the following tests according to ASTM A615.

B. Identified Bars: If samples are obtained from bundles as delivered from the mill, identified as to the heat number, accompanied by the mill analyses and mill test reports, and properly tagged with Identification Certificate so as to be readily identified, perform one tensile and one bend test for each 25 tons or fraction thereof of each size of bars. Submit mill reports when samples are selected.

C. Unidentified Bars: When positive identification of bars cannot be made and when random samples are obtained, perform tests for each 10 tons or fraction thereof, one tensile and one bend test from each size of reinforcement.

D. Codes: C.B.C. and/or U.B.C. Building Codes and latest Supplements thereto and "Standard Specifications for Public Works Construction" Current Edition.

E. Standards: (As Applicable)

1. ACI-301 - Specifications for Structural Concrete for Buildings.
2. ACI-315 - Details and Detailing of Concrete Reinforcement.

3. ACI-318 - Building Code Requirements for Reinforced Concrete.
4. ASTM A82 - Cold Drawn Steel Wire for Concrete Reinforcement.
5. ASTM A185 - Welded Steel Wire Fabric for Concrete Reinforcement.
6. ASTM A497 - Welded Deformed Steel Wire Fabric for Concrete Reinforcement.
7. ASTM A615 - Deformed and plain Billet-Steel Bars for Concrete Reinforcement.
8. ASTM A706 - Low-Alloy Steel deformed bars for Concrete Reinforcement.
9. AWS.D1.4 - Structural Welding Code For Reinforcing Steel.
10. CRSI - Concrete Reinforcing Steel Institute Manual of Practice.
11. CRSI-63 - Recommended Practice for Placing Reinforcing Bars.
12. CRSI-65 - Recommended Practice for Placing Bar Supports, Specifications and Nomenclature.

1.04 SUBMITTALS: Refer to Section 01300 for submittal procedures and requirements.

1.05 PRODUCT DELIVERY, STORAGE, AND HANDLING: Deliver materials in timely manner to ensure uninterrupted progress. Store materials by methods that prevent damage and permit ready access for inspection and identification.

PART 2 - PRODUCTS

2.01 MATERIALS: Furnish materials meeting the test requirements of Paragraph "Source Quality Control" hereinbefore, as applicable, and following requirements:

Reinforcing bars:	ASTM A615, Grade(s) 40 and 60, per structural drawings; in addition, the ultimate tensile stress shall be not less than 1.25 times the actual yield stress (based on mill tests) and the carbon equivalent value shall not exceed 0.065. All welded rebar to be A706.
Reinforcing mesh:	ASTM A185, mesh size and gage as indicated on drawings, 60 ksi minimum tensile strength.
Tie wire:	Annealed steel, 16 gage minimum.
Welding electrodes:	AWS D5.1, 80 of 90 Series, low hydrogen Type AWS D1.4.
Anchors/Dowels for: For Expansion Joints:	#4 rebar, with "Speed Dowel" as manufactured by Aztec Concrete Accessories, Inc., (800) 531-3355 or (909) 829-2765.
Chairs, Spacers and Supports:	Conform to ACI-315, fabricated from steel wire with coated exposed legs or equivalent plastic products or dense precast concrete blocks for slab on grade only.

2.02 FABRICATION OF REINFORCING BARS:

A. **Bending and Forming**: Fabricate bars of the indicated sizes and bend and form to required shapes and lengths by methods not injurious to materials. Do not heat reinforcement for bending. Bars with unscheduled kinks or bends are subject to rejection. Use only tested and approved bar materials.

B. **Welding**: All reinforcing steel subject to welding shall conform to ASTM 706, Grade 60. Perform welding, where shown or approved, by the direct electric arc process in accordance with AWS D1.4 using the specified low-hydrogen electrodes. Preheat 6" each side of joint. Protect joints from drafts during the cooling process; accelerated cooling is prohibited. Do not tack weld bars. Clean metal surfaces to be welded of all loose scale and foreign material. Clean welds each time electrode is changed and chip burned edges before placing welds. When wire brushed, the completed welds must exhibit uniform section, smooth welded metal, feather edges without undercuts or overlays, freedom from porosity and clinkers, and good fusion and penetration into the base metal. Cut out welds or parts of welds found defective with chisel and replace with proper welding. Employ only experienced certified welding operators. Prequalification of welds shall be in accordance with Code. Reinforcing bars to be welded shall conform to ASTM A706, Grade 60.

C. **Marking and Shipping**: Bundle bars, tag with identification, and transport and store so as not to damage any material. Keep a sufficient supply or tested and approved bars at site to avoid delays.

PART 3 - EXECUTION

3.01 INSTALLATION OF REINFORCING: Provide additional bars at sleeves and openings as required. Before placing bars, and again before concrete is placed, clean bars of loose mill scale, oil, or other coating that might destroy or reduce bond.

A. **Securing in Place**: Accurately place bars and wire tie in precise position where bars cross. Bend ends of wire ties away from forms. Wire tie bars to corners of ties and stirrups. Support bars according to current edition of "Recommended Practice for Placing Bar Supports" of the Concrete Reinforcing Steel Institute, using approved accessories and chairs. Use precast concrete cubes with embedded wire ties to support reinforcing steel bars in concrete placed on grade and in footings.

B. **Exposed Surfaces**: Provide stainless steel or plastic tipped chairs, bolsters, and accessories where exposed on exterior or interior concrete surfaces not to be painted or covered.

C. **Clearances**: Maintain minimum clear distances between reinforcing bars and face of concrete as indicated or directed.

D. **Splices**: Do not splice bars at points of maximum stress except where indicated. Lap splices as shown or required to develop the full strength or stress of bars. Stagger splices for bars in slabs at least 48" longitudinally so that no more than 1/3 of bars are spliced in one location. Splices to be in contact or spaced one bar diameter or 1" clear and in columns 1-1/2 bar diameter or 1-1/2 clear

E. **Field Welding of Bars**: As specified for fabrication.

F. **Maintaining Bars In Position**: Assign a competent ironworker mechanic at every concrete placing location to inspect reinforcement and maintain all bars in the correct positions, unless permitted by Engineer, reinforcement shall not be bent after being placed in hardened concrete.

G. **Reinforcing Mesh**: Lap two full mesh plus 2" at splices, wire tie, and support the same as specified for bars.

3.02 MISCELLANEOUS CONCRETE WORK: Provide reinforcing for areaways, cast-in-place valve boxes, pits, splash blocks, bases, and other miscellaneous concrete as shown and required to complete all Work. Conform to applicable requirements herein.

3.03 FIELD QUALITY CONTROL: Refer to Section 01400.

A. **Supervision**: Perform Work of this Section under the supervision of a capable superintendent.

B. **Inspection**: Obtain inspection and approval of reinforcing before concrete is placed.

C. **Welding Inspection**: Whether welding is done in the shop or at the site, perform welding of reinforcing bars under continuous inspection of the Testing Laboratory Welding Inspector.

END OF SECTION

SECTION 03300

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 DESCRIPTION: Division 1 applies to this Section. Provide all Work constructed of cast-in-place concrete complete as indicated, specified, and required.

A. Work In This Section: Principal items include:

1. Furnishing, placing, patching, and initial curing of cast-in-place concrete unless otherwise specified.
2. Grout work, except as otherwise specified.
3. Placing of embedded anchor bolts and inserts.
4. Vapor barrier under interior floor slabs on grade.

B. Related Work Not In This Section:

1. Preparation and grading of earth subgrade under concrete.
2. Furnishing, erection, and removal of forms.
3. Furnishing and placing reinforcing for cast-in-place concrete.
4. Final finishing and curing of cast-in-place concrete.
5. Crushed rock/sand fill under interior floor slabs.

1.02 QUALITY ASSURANCE:

A. Concrete Manufacturer: Furnish all concrete from licensed commercial ready-mix concrete plants conforming to ASTM C94 and approved by Building Official. The requirements herein govern when exceeding ASTM C94.

B. Allowable Tolerances: Construct concrete conforming to tolerances specified in ACI 301, "Specifications for Structural Concrete for Buildings", as applicable, unless exceeded by requirements of regulatory agencies or otherwise indicated or specified.

C. Source Quality Control: Refer to Section 01400 for general testing requirements and to following paragraphs for specific procedures. Concrete materials which, by previous tests or actual service, have shown conformance may be used without testing when approved by Architect and Building Official. Testing Laboratory shall perform following conformance testing.

1. Portland Cement: Furnish Mill Certificates, acceptable to the Architect and Building Official, showing conformance with requirements specified; otherwise, the Testing Laboratory shall test each 25 barrels of cement in accordance with ASTM C150.

2. Aggregate For Normal Weight Concrete: Test the aggregate before and after concrete mix is designed and whenever character of aggregate varies or source of material is changed. Include a sieve analysis. Obtain samples of aggregates at source of supply or at the ready-mix concrete plant in accordance with ASTM D75 and perform tests for the following properties:

Sieve analysis:	ASTM C136.
Organic impurities:	ASTM C40, fine aggregate color not darker than the reference standard color.
Soundness:	ASTM C88, loss after 5 cycles not over 8% of coarse aggregate or 10% of fine aggregate.
Abrasion:	ASTM C131, weight loss not more than 10-1/2% after 100 revolutions, 42% after 500 revolutions.
Deleterious materials:	ASTM C33.
Materials finer than No. 200 sieve:	ASTM C117, not over 1% for gravel, 1.5% for crushed aggregate, per ASTM C33.
Reactivity potential:	ASTM C227, C289, and C342, ratio of silica released to reduction in alkalinity not to exceed 1.0; include full report for Architect's evaluation.
Sand equivalent:	ASTM D2419, California Sand Equivalent values not below 80 percent.
FlyAsh:	ASTM C618, Class F.

1.03 CONCRETE MIX DESIGNS: Testing Laboratory shall design concrete mixes for all concrete requiring 28-day compressive strength exceeding 2,000 psi. Contractor shall bear all costs for concrete mix designs. Mix design shall be stamped and signed by a licensed California Professional Engineer and shall identify where concrete mix is to be used.

A. **Strength Requirements**: Design mixes for structural concrete for minimum 28-day compressive strengths required by Drawings and Specifications. The trial batch strength for each mix shall exceed indicated or specified strength by 750 psi or a lesser amount based on standard deviations of strength test records according to ACI 318.

B. **Basis of Mix Designs**: Design concrete mixes for workability and durability of concrete. Control mixes in accordance with Chapter 4, ACI 318 "Building Code Requirements for Reinforced Concrete". Make adjustments in cement content as necessary for required concrete strengths at the Contractor's expense. Do not exceed 0.45 absolute water-cement or cement plus fly ash ratio by weight. The admix for formed normal weight concrete shall contain an air-entraining agent producing air content of 3.5% to 6.5% by volume and adjusted for weather conditions. Air entrainment is not required for footing and foundation concrete. Do not use calcium chloride. Other admixtures containing material releasing nitrates in solution are limited to 0.06% by weight for the chloride ion.

C. **Maximum Aggregate Sizes**: Not exceeding 3/4 of minimum clear space between bars and between bars and forms, no larger than 1/5 of least dimensions between the forms. Design the mixes with 1" maximum size, except maximum 1-1/2" size for foundations and maximum 3/8" size where congested reinforcing or thin sections occur. Obtain specific approval of Structural Engineer prior to use of 3/8" (pea gravel) mix.

1.04 SUBMITTALS: Refer to Section 01300 for procedures.

A. **Shop Drawings**: Submit for structural concrete and concrete slabs showing dimensioned locations and types of construction and expansion joints.

B. **Samples**: Refer to Section 03345.

C. **Concrete Mix Design**: Refer to this Section.

1.05 PRODUCT DELIVERY, STORAGE, AND HANDLING: Deliver materials in timely manner to ensure uninterrupted progress. Store materials by methods that prevent damage and permit ready access for inspection and identification.

1.06 JOB CONDITIONS: Do not place concrete during rain or adverse weather conditions without means to prevent any damage. Conform to ACI 305 "Recommended Practice for Hot Weather Concreting" and ACI 306 "Recommended practice for Cold Weather Concreting" as required except do not use calcium chloride or accelerators.

A. **Coordination**: Coordinate with related trades and verify concrete surfaces are correctly finished, water or sheet cured without the use of curing compound and are dry.

B. **Below Slab Conditions**: Place concrete slabs over the sand layer membrane without driving stakes or anything else through it. Control of concrete shrinkage cracking and curling must be accomplished by established good-concreting practices, such as by curing methods, joint spacing and mix design. Require use of concrete block supports beneath rebar. A low water/cement ratio permitted by water reducing admixtures or by maintaining a slump as specified on the drawings is required to facilitate finishing in a timely manner. Require that concrete contractor exercise care to avoid damaging installed membrane system in any way and that if damage occurs he immediately notifies membrane installer for repair.

PART 2 - PRODUCTS

2.01 MATERIALS: Furnish materials meeting the test requirements of Paragraph "Source Quality Control" hereinbefore, as applicable, and following requirements:

Portland cement:	ASTM C150, Type II or Type V, low alkali. Do not change brand without prior approval.

Stone aggregates:	ASTM C33, from approved pits, free from vegetable matter and of opaline, feldspar, and siliceous magnesium substances; clean, hard, fine-grained sound crushed rock or washed gravel; not over 5% by weight of flat, thin, elongated, friable or laminated pieces (pieces having the major dimension over 5 times average dimension) or over 2% by weight of shale or cherty material.
Admixture:	ASTM C494, All material shall be non-corrosive and have chloride content not exceeding water: Type A - Water-reducing. Type C - Water-reducing, accelerator. Type D - Water-reducing, retarded. Type F or G - High range water reducing, optional subject to approval of Structural Engineer.
Pozzolan:	ASTM C618, Class F Fly Ash, not exceeding 15% of total cementitious material by weight.
Air-entraining admix:	ASTM C260.
Water:	From potable domestic source.
Joint filler:	ASTM D1751 and D1752, as specified.
Curing compound:	ASTM C309, fugitive dye dissipating type.
Curing sheet:	ASTM C171, non-staining white types.
Evaporation retardant and finishing aid:	Master Builders "Confilm", or equal.
Surface retarder:	L.M. Scofield "Lithotex Retarder", Sika Type S or B "Rugasol", Chem-Masters "Exposee H", or equal.
Vapor barrier:	Preformed sheet membrane per STM E1745, Class A. Water Vapor Transmission Rate, 0.006 WVTR, or lower, 10-mil thickness, with minimum 2" wide waterproof plastic tape, self-adhering type.
Non-shrink grout:	Master Builders "Embeco" 636 885, or equal, non-gas-forming type, free of oxidizing catalysts and inorganic accelerators, performance characteristics when mixed to fluid consistency meeting CRD-611 and CRD-631, non-staining type in exposed areas.
Bond Breaker:	Hunts Process Tilt-Cure or 225-TU or Master Builders or equal materials as required for each type of application. Refer to Section 03430 Tilt-Up Concrete for additional recommendations.
Bonding and Repair:	1. Bonding material shall be a polyvinyl acetate compound for use in areas not subject to moisture. 2. Epoxy adhesive shall be a two-part compound suitable for wet or dry areas. 3. Patching mortar shall be free flowing, polymer-modified cementious coating. 4. Bonding admixture shall be a latex, non-wettable type.

2.02 CONCRETE MIXING: Furnish ready-mixed concrete from an approved commercial offsite plant. Conform to ASTM C94, except materials, testing, and mix designs as specified herein. Use transit mixer trucks equipped with automatic devices for recording number of revolutions of drum.

A. **Limitation of Mix Water**: Do not deliver ready-mixed concrete to site with total amount of mixing water included. Withhold 2-1/2 gallons of water per cubic yard at the plant unless a lesser amount is approved by the Structural Engineer, then add to mix before concrete is discharged from the mixer truck under supervision of Inspector. Each mixer truck shall arrive at the site with full water tank; if the tank is not full and concrete tests to a slump greater than specified, entire load is subject to rejection.

B. **Slump**: Adjust quantity of water so concrete at time of placing does not exceed the slumps of 4", unless otherwise required by the Architect, and at the point of placing when tested according to ASTM C143. Use the minimum water necessary for workability required by part of structure being cast. The maximum slumps shall not be exceeded.

PART 3 - EXECUTION

3.01 PREPARATION FOR CONCRETE PLACING: Remove free water from forms before concrete is deposited. Remove hardened concrete, debris, and all foreign materials from forms and from surfaces of mixing and conveying equipment.

A. **Wetting**: Wet wood forms sufficiently to tighten up cracks. Wet other materials sufficiently to reduce suction and maintain concrete workability.

B. **Earth Subgrade**: Lightly dampen subgrade 2 hours before placing concrete but do not muddy. Re-roll where necessary for smoothness and remove loose material.

C. **Crushed Rock Fill**: Recompact disturbed crushed rock and bring to correct elevation.

D. **Subslab Drainage Fill**: Recompact disturbed material and bring to the correct elevation.

3.02 CONCRETE PLACING:

A. **Joints In Concrete**: Locate joints only where approved. Obtain prior approval for points of stoppage of any pour. Clean and roughen surface of construction joints by removing entire surface and exposing 1/4" of clean aggregate solidly embedded in mortar matrix by sandblasting, chipping, or equal. Water and keep hardened concrete wet for not less than 24 hours before placing new concrete. Cover horizontal surfaces of existing or previously placed and hardened concrete with fresh concrete less 50% of coarse aggregate just before balance of concrete is

placed. Carefully control amount of moisture applied so that no free water will be present at any time.

B. **Conveying and Placing**: Do not place concrete until reinforcing steel, forms, or metal decking have been approved by the Inspector and other authorities having jurisdiction. Do not use aluminum tubes or any aluminum equipment for pumping concrete, nor allow concrete to free fall from its point of release at mixer, hoppers, tremies, or conveying equipment more than 3 feet. Deposit concrete so that the surface is kept level throughout, a minimum being permitted to flow from one portion to another. Place concrete in horizontal layers not more than 18" thick within 45 minutes after water is first added to the batch. Place concrete by methods that prevent segregation of materials. For special exposed concrete do not use first batch of concrete at each start up.

C. **Consolidation**: Vibrate each layer of concrete as placed with mechanical vibrators or equivalent equipment to accomplish thorough consolidation. Supplement by hand rodding or spading adjacent to forms. Vibration through forms shall not be used. Compact concrete into corners and angles of forms and around reinforcement and embedded fixtures. Recompact deep sections with heavy congestion due to reinforcing steel.

D. **Operation of Vibrators**: Do not transport concrete in forms with vibrators nor allow vibrators to contact forms or reinforcing. Push vibrators vertically into preceding layers that are still plastic and slowly withdraw, producing maximum obtainable density in concrete without creating voids or segregation. Under no circumstances disturb concrete that has stiffened or partially set. Vibrate at intervals not exceeding two-thirds the effective visible vibration diameter of the submerged vibrator and generally at 18" on centers. Avoid excessive vibration and conform to ACI 309 "Recommended Practice for Consolidation of Concrete".

E. **Re-Vibration**: Place concrete containing retarding admixture by a schedule that allows layers of concrete to be in place and compacted for at least 30 minutes before the next layer of concrete is placed. Remove bleed water on the concrete surface and from forms and re-vibrate the concrete down as far as the concrete is plastic before placing the next layer.

F. **Correction of Segregation**: Before placing next layer of concrete, and at top of last placement for vertical elements, remove concrete containing excess water or fine aggregate or showing deficiency of coarse aggregate and fill the space with compacted concrete of correct proportions.

G. **Slabs**: Strike off excess concrete by screeding to bring top surface to proper grade. The screed template should be removed across the concrete in a sawing manner as it is brought forward. Use a darby or bull-float after the screed operation, to eliminate high and low spots. Compact and tamp concrete, and bring 1/8" to 3/16" of coarse mortar to surface. Wood float to straightedges and screeds after water sheen has disappeared. Do not use steel or plastic floats of any

kind for initial floating operations. Do not apply finishes until all surface water disappears and surface is sufficiently hardened. Remove bleed water and laitance as it appears. Section 03345 covers final slab finishing and curing.

3.03 CURING OF CONCRETE: Cure concrete for at least 10 days, under moist conditions. Forms which are maintained tight and wet are considered adequate curing. Fresh backfill is adequate curing for footings and subgrade walls. Cure exposed concrete surfaces by application of additional procedure.

A. **Horizontal Concrete and Slabwork**: Commence curing during finishing of surfaces immediately after "bleed water" disappears by use of fine mist-type fog spray and continue without interruption until application of long-term curing, which must be done after final troweling when concrete has attained final permanent set and bleeding has stopped. Long-term curing must be done as specified in Section 03345 Concrete Finishing.

B. **Curing**: Conform to ACI 308. Use proposed methods in fabricating sample panel for Architects approval.

1. Hot Weather Curing: Conform to ACI 305.
2. Cold Weather Curing: Conform to ACI 306.

C. **Cure concrete slabs to receive elastomeric** surfaces by water curing method; curing compounds or chemical agents shall not be used unless they will completely dissipate within 28 days and are approved for use by the coating manufacturer. Allow concrete to dry minimum of 28 days.

D. **Cure, Seal and Harden** all exposed interior and exterior flatwork, including floor slabs, stairs, walks, pavements, parking and driving areas, etc.

3.04 PATCHING FORMED CONCRETE: Remove fins, projections, and offsets. Cut out rock pockets, honeycomb, and other defects to sound concrete, edges of cuts straight and back-beveled. Dampen cuts and scrub with neat portland cement slurry just prior to patching, or apply an approved epoxy concrete adhesive. Saturate form tie holes with water and fill all voids and patches with flush smooth-finished mortar of same mix as concrete (less coarse aggregate), cure, and dry.

3.05 FINISHING EXPOSED FORMED CONCRETE: Refer to Section 03345.

3.06 SLAB FINISHING AND CURING: Refer to Section 03345.

3.07 GROUTING: Install as indicated or required except for the items grouted by other trades.

A. **Mixing**: Mix the approved non-shrink grout material with sufficient water per manufacturers recommendations, so it flows under its own weight for grout, and to just moisten and bind the material together for drypack.

B. **Placing and Curing**: Place fluid grout from one side only and puddle, chain, or pump for complete filling of voids; do not remove the dams or forms until grout attains initial set. Finish exposed surfaces smooth and cure with damp burlap at least 3 days.

3.08 MISCELLANEOUS CONCRETE WORK: Provide areaways, cast-in-place valve boxes, pits, splash blocks, bases, and other miscellaneous concrete as shown and required to complete all Work. Conform to applicable requirements herein.

3.09 FIELD QUALITY CONTROL: Refer to Section 01400.

A. **Supervision**: Perform Work of this Section under the supervision of a capable concrete superintendent.

B. **Level of Floors**: Continuously monitor concrete placing operations to maintain level floor by use of an instrument level, transit, or laser.

C. **Continuous Inspection**: All construction of concrete with a specified strength in excess of 2,500 psi shall be continuously inspected. Obtain inspection and approval of forms and reinforcing by Building Department as required and by the Inspector before placing structural concrete.

D. **Testing of Concrete**: Testing Laboratory shall perform following tests:

1. Compressive Strength Tests: Cast one set of four or more test cylinders from each day's concrete placing and each 150 cubic yards, or fraction thereof, or for each 5,000 square feet of slab, of each strength of structural concrete. Date test cylinders, number, and tag showing the location from which sample was taken. Indicate slump test result of each sample. Do not make more than two series of tests from any one location or batch of concrete.
2. Test Cylinders: Cast according to ASTM C31; 24 hours later, store cylinders under moist curing conditions at about 70^{o}F. Test according to ASTM C39; one cylinder at 7 and two cylinders 28 day ages. Retain one cylinder for testing at 56 days if 28 day test fails.

F. **Core Tests**: Should tests show the strength of any concrete falls below required minimum, additional testing of concrete which unsatisfactory tests represent may be required. Make core tests according to ASTM C42. Fill the core holes with grout concrete of strength required for concrete. Contractor shall bear cost of tests for below-strength concrete even if such tests indicate concrete has attained required minimum compressive strength.

END OF SECTION

SECTION 03345

CONCRETE FINISHING

PART 1 - GENERAL

1.01 DESCRIPTION: Division 1 applies to this Section. Perform and provide all concrete finishing required to complete the Work, except for concrete finishing specified to be performed under other Sections.

A. Work In This Section: Principal items include:

1. Samples and submittals.
2. Finishing of exposed formed concrete.
3. Final slab finishing and curing.

B. Related Work Not In This Section:

1. Furnishing, erection, and removal of forms.
2. Furnishing, placing, patching, and initial curing of cast-in-place concrete unless otherwise specified.

1.02 QUALITY ASSURANCE: As specified in Section 03300.

1.03 SUBMITTALS: Refer to Section 01300 for procedures.

A. Product Data: Submit for the following:

1. Curing-sealer-hardener.

B. Site Samples: Prepare following Samples at the site, cast in the directed locations and orientations. Prepare as many Samples of each type of concrete as are required for approval. Remove Samples from the site when no longer needed and removal is approved. Approved Samples may be part of permanent construction if meeting all other requirements shown and specified and are so approved. Use form and concrete materials previously approved under Sections 03100 and 03300.

1. Slab Samples: Prepare minimum 4-foot square Samples of each required slab finish excluding only monolithic trowel and steel float finishes. Include a transverse expansion joint, scoring, and edging.

PART 2 - PRODUCTS

2.01 MATERIALS: Furnish materials conforming to Section 03300, as applicable, and following requirements:

Curing-sealer-hardener:	Ashford Formula by Curecrete Chemical Company, Inc. distributed by BMSA inc. (949) 233-2127 or UniSeal by Unitex (816) 231-7700 or approved equal, applied and warranted as specified herein.

PART 3 - EXECUTION

3.01 FINISHING EXPOSED FORMED CONCRETE: Surface patching and initial curing of formed concrete are specified in Section 03300. Rub surfaces with a carborundum brick or equal until smooth and free of form marks, offsets, and other defects, and in uniform planes. Wet rubbed surface and then brush coat with cement grout consisting of 1 part light-colored portland cement to 2 parts fine aggregate and mixed with water to the consistency of thick paint. Cork or wood float grout to fill all pits, air bubbles, and surface holes. Scrape off excess grout and rub surface with burlap or equal to remove all grout film. After grout sets, again coat with same grout, cure, then brick and burlap rub as necessary to eliminate remaining defects and blemished, and damp cure surfaces for not less than 3 days or longer if required for complete curing of concrete. Finish, clean, and cure each surface as a continuous operation. Produce uniformly plane smooth surfaces free of grout film, grout or rubbing marks, defects, or blemishes after painting or covering with a flexible type finish material. Unless otherwise indicated or specified, apply this finish on exposed formed concrete.

A. **Surfaces Excepted**: Rubbed and grouted finish is not required on following surfaces:

1. Permanently concealed concrete.
2. Concrete exposed in electrical, utility, storage, shaft, and similar non-public rooms and areas.

3.02 SLAB FINISHES: Produce finish slab surfaces level or sloped with tolerances indicated on the Drawings and ACI Standards. Keep surface moist with a fine fog spray of water as necessary. Dusting with dry cement or sand during finishing operations is not permitted. Finish all slab edges and joints with an edging tool. Match the approved Sample panels. Apply the following finishes as indicated, specified, directed, and applicable.

A. **Broom Finish**: Prepare same as steel float finish, then apply a uniform approved coarse texture finish as approved by Architect, by sliding a wire or stiff bristle broom in one direction along a straightedge guide placed at right angles to the direction of traffic. At walking areas, apply smooth finish 3" wide at edges, expansion joints and scoring.

B. **Monolithic Trowel Finish**: For slab and flatwork surfaces not indicated or specified to receive another finish. After surface water disappears and floated surfaces are adequately hardened, steel trowel and retrowel concrete to a smooth surface. After concrete has set sufficiently to ring the steel trowel, retrowel to a smooth uniform finish free of trowel marks and blemishes. Avoid excessive retroweling that produces burnished areas.

C. **Steel Float Finish**: Same as for monolithic trowel finish except omit the second retroweling.

D. **Scoring**: Provide where shown or directed, using tool of approved size and profile. Run score lines straight and of uniform appearance. If scoring is not indicated, obtain Architect's instructions not less than two working days before the day slab concrete is placed.

3.03 SLAB CURING: Promptly apply curing media as soon as finishing is complete without marring surfaces, and in any case on same day. Apply liquid compound in accordance with the manufacturer's published application rates; apply 2 spray coats, with second coat at right angle to first coat. Cover adjoining surfaces. Equip spray nozzles with windshield suitable for wind conditions.

A. **Curing Period and Protection**: Maintain all curing media intact and sealed for 10 days minimum after application. Keep foot traffic on the curing surfaces to minimum possible and completely off liquid compound cured surfaces; vehicular traffic is not permitted on the surfaces until curing is completed. Immediately restore all damaged or defective curing media.

B. **Restriction**: Do not apply liquid membrane-forming curing compounds on any concrete to receive or bond to concrete or mortar, or on any surfaces to receive subsequent material or finish unless such use and the specific compound used are approved by manufacturer of the material or finish to be applied, and verify all such use with related trades. Do not apply curing compounds on slabs to receive elastomeric or bituminous type coatings.

C. **Liquid Membrane-Forming Curing Compound**: Use on exterior slabs and paving but subject to above restriction.

D. **Sheet Curing**: Use the specified curing sheet material. Seal all laps and edges with plastic pressure-sensitive tape, and immediately repair tears during the curing period. Verify that surfaces remain damp for the full curing period; if necessary, lift sheet, wet surfaces with clean water, then replace and reseal the sheeting. Use on surfaces where curing compound is not permitted.

E. **Water Curing**: Option to either liquid membrane-forming curing compound or sheet curing method. Keep concrete continuously wet for entire curing period.

3.04 CLEAN-UP: Contractor shall clean up all concrete and cement materials, equipment and debris upon completion of any portion of the concrete work and upon completion of the entire concrete and related work as specified in Section 01700.

END OF SECTION

SECTION 03720

ANCHORAGE TO EXISTING CONCRETE

PART 1 - GENERAL

1.01 DESCRIPTION: General Conditions and Division 1 apply to this Section. Provide anchorage to existing concrete by means of epoxy, dowels and anchors complete as indicated, specified, and required.

A. Work In This Section: Principal items include:

1. Epoxy, dowels and anchors.

B. Related Work Not In This Section:

1. Cast-in-place concrete.
2. Steel reinforcement.
3. Surface preparation.

1.02 QUALITY ASSURANCE: Refer to Section 01400 for general testing requirements. Testing Laboratory shall perform conformance testing on samples of epoxy, anchors and dowels from material at the site or from place of distribution, each sampling shall conform with latest edition of ACI Standards and Practices including pertinent regulations of local Codes and regulations apply.

1.03 SUBMITTALS: Refer to Section 01300 for procedures.

A. Product Data: Submit data for proprietary materials and items including epoxy compounds.

B. Laboratory Test Reports: Submit laboratory test reports for epoxy materials and pullout tests as specified.

C. Shop Drawings: Submit including complete installation, layouts, sections, and details of existing conditions, typical configurations, spacing and offsets, splice lengths, depth of embedment, surface preparation and locations, proposed epoxy anchors and dowels anchorage intersect. Install in accordance with latest edition of ACI Standard and Practices. After Engineer's approval of initial submission, subsequent submittals may be waived at the Engineer's discretion.

1.04 PRODUCT DELIVERY, STORAGE, AND HANDLING: Deliver materials in timely manner to ensure uninterrupted progress. Store materials by methods that prevent damage and permit ready access for inspection and identification.

PART 2 - PRODUCTS

2.01 MATERIALS:

A. **Epoxy Anchors and Dowels**: Unless otherwise noted furnish epoxy anchors and dowels by HILTI Hit-C-100 or covert inject adhesive-gel (CIA-GEL) anchors or approved equal systems by the Engineer for application or injection as designated on the drawings.

B. **Reinforcements**: Provide reinforcing steel as specified in Section 03200.

PART 3 - EXECUTION

3.01 INSTALLATION OF ANCHORAGE TO EXISTING CONCRETE: Install in accordance with procedures designated in drawings, apply or inject epoxy compounds in strict accordance with the manufacturer's specifications and recommendations for each intended type of use.

A. **Anchors and Dowels**: Provide all epoxy grouted anchors and dowels. At random for each concrete pour 10% percent of the anchors and dowels shall be tested in tension to twice the design allowable tension values as indicated on the Drawings. Deficient anchors and dowels shall be replaced and retested at the Contractors expense. The Engineer may change the frequency of tests as construction progresses.

1. The depths to drill anchorage holes are indicated on the Drawings. The hole diameter shall be equal to the outside diameter of the anchor or dowel plus 1/8" unless otherwise recommended by the Epoxy Manufacturer. The holes shall be cleaned and dry per Manufacturer's recommendations prior to installation.

B. **Reinforcements**: Install in accordance with approved Shop Drawings and Manufacturer's recommendations. The reinforcement in existing concrete shall not be cut or damaged by the new construction. The Contractor shall submit his procedures for identification of existing reinforcement and post-tensioned strands for Engineer's approval prior to commencing work. The reinforcing dowels related to this Section shall be free of all contaminates. The Contractor shall provide adequate means to support anchors and dowels in place during placing of new concrete.

3.02 FIELD QUALITY CONTROL:

A. **Inspection**: Continuous inspection shall be provided during epoxy, anchor and dowel installation. Reinforcing bar placement shall be inspected and approved prior to concrete installation.

B. **Testing**: The testing laboratory shall perform appropriate tests of epoxy work and submit test reports.

C. **Field Tests**: The testing service will make additional pullout tests of in-place work for 10% of installed anchors. Tests shall be as directed by the Engineer and shall include tests at beginning of work for each size and condition of anchors and dowels.

D. **Schedule of Work**: Perform Work in existing facilities during such hours and by methods as are approved by Owner. Submit proposed schedules itemizing dates and hours that the various items of Work in existing facilities will be started and completed. Owner reserves the right to modify proposed schedules to eliminate conflicts and ensure use of existing facilities during the Work. Exactly follow the schedule as finally approved by Architect/Owner. No extra payment will he made to the Contractor for the Work required to be performed during night, Saturday, Sunday, or holiday hours. Revise and resubmit schedules when timing or sequence changes occur or are ordered by Owner/Architect.

END OF SECTION

SECTION 06100

ROUGH CARPENTRY

PART 1 - GENERAL

1.01 DESCRIPTION: Division 1 applies to this Section. Provide rough carpentry complete as indicated, specified, and required.

A. Work In This Section: Principal items include:

1. Rough construction wood and plywood framing.
2. Wood blocking, grounds, backing, stripping, cants, and nailers as indicated, specified, or required for securing other Work, except for those items specified to be furnished by other trades.
3. Provide rough hardware incidental to Work of this Section and install steel non-standard framing connectors furnished under Division 5.
4. Wood preservative treatment.

B. Related Work Not In This Section:

1. Concrete forms.
2. Finish carpentry and millwork.
3. Casework and cabinet work.
4. Insulation.
5. Furnishing of steel non-standard wood framing connectors.

1.02 QUALITY ASSURANCE:

A. Requirements of Regulatory Agencies: Conform to CBC and Uniform Building Code, Chapter 23 for construction, nailing, and connections except as exceeded by requirements on Drawings or specified.

B. Supervision: Perform rough carpentry under the direction of capable experienced foreman.

1.03 PRODUCT DELIVERY AND STORAGE: Store lumber materials, plywood, and metal items off the ground, protected from rain and dampness.

1.04 JOB CONDITIONS: Coordinate with related trades and plan the framing and furring to accommodate structural members, finish materials, piping, conduits, ductwork, mechanical and electrical equipment, accessories, an fixtures.

PART 2 - PRODUCTS

2.01 LUMBER: Douglas fir and Larch, all S4S unless otherwise indicated or specified, manufactured, graded, and bearing grade mark of WCLIB Standard Grading Rules 16 or

WWPA Grading Rules, moisture content at time of enclosure not over 19% or less than 7%.

A. **Grades**: Use grades as scheduled, species as noted on Structural drawings.

1. Miscellaneous. For blocking, nailers, and other non-stressed lumber, WCLIB "Economy", equivalent WWPA grade, or as scheduled for studs.

B. **Lumber Pressure Preservative Treatment**: Pressure treat all lumber for blocking, screeds, cants, nailers, grounds, stripping, rough bucks, plates, sills, and the like resting on or against steel, masonry, or concrete, or connected to roofing, in accordance with AWPA Standard C1 and AWPI Standard LP-2, each piece of lumber bearing the mark of an approved testing agency. Deliver to the site at maximum 14% moisture content. When necessary to cur, not, tap, bore, splice, or frame treated lumber, thoroughly paint newly cut surfaces with same preservative used in treatment of lumber.

C. **Plywood**: Provide Douglas fir plywood elsewhere conforming to PS 1-95, Group I, "Exterior" type, grade marked by recognized grading agency (APA), grades as noted on Structural Drawings. OSB panels may be allowed if approved by the Structural engineers. OSB panels shall conform to PS 2-92, Exposure-1. Use structural-1 sheathing for structural application (diaphragm and shear walls). Use plywood only at exterior walkways and deck surfaces.

D. **Fire-Retardant Treatment**: Provide as indicated on drawings and where required by the Building Code. Pressure treat to flame spread rating of 25 or less and fuel contribution of 30 or less when tested in accordance with ASTM E84, each piece bearing the UL label of conformance. Re-dry to maximum 14% moisture content.

2.02 ROUGH HARDWARE: Provide rough hardware required to complete the Work shown and specified. The term "rough hardware" includes bolts, nuts, nails, washers, lag screws, washers, plates, post and beam anchors, joist hangers, framing hangers, wood connectors, and similar items used for construction of rough wood framing. Non-standard steel framing connectors are specified in Division 5 and installed under this Section.

A. **Nails**: Provide common wire nails, sizes as indicated. Provide ring-shank nails for plywood on floors.

B. **Adhesive**: Elastomeric adhesive conforming to American Plywood Assn. Specification AFG-01 for "APA Glued Floor System".

C. **Bolts and Nuts**: ASTM A307, galvanized for exterior or exposed use.

D. **Washers**: As noted on Drawings, galvanized for exterior or exposed use.

E. Stock Framing Connectors: By "Simpson" or approved equal, types indicated or required, galvanized, with nails furnished by manufacturer of anchors used. Fully drive nails in all holes in anchors. If other than Simpson connectors are proposed for use, submit Code approval catalog data with proposed substitutions circled.

PART 3 - EXECUTION

3.01 GENERAL: Fabricate, install, connect and fasten, bore, notch, and cut wood and plywood framing with joints true, tight, and well-nailed, screwed, or bolted as required, all members with solid bearing without being shimmed. Set horizontal members subject to bending with crown up. Install framing plumb, square, true, and cut for full bearing. Splices are not permitted between bearings. Use full lengths except as detailed. The notching, drilling, splicing, or cutting of any structural member is not permitted without prior approval. Reinforce or replace wood framing members damaged by erroneous cutting as directed. Perform cutting for other trades under their direction. Wherever necessary to avoid splitting, sub-drill for nails and screws with diameter of hole smaller than that of nails or screws.

3.02 NAILING: Use nails or spikes of such lengths that penetration into second piece of wood is not less than one-half the nail or spike length, except 16d nails may be used to connect pieces of 2" nominal thickness. Set nails no closer together than one-half nail length, nor closer to wood edges than one-fourth nail length. Sub-drill holes where necessary to prevent splitting. Use of power driven nails is subject to approval by the Engineer. Demonstrate satisfactory installation of machine nailing at the site and obtain approval by Structural Engineer before using machine-applied nails; such approval is subject to continued satisfactory performance.

A. Nails and Spikes:

1. Furnish only common wire nails or spikes whenever indicated, specified or required.
2. Whenever necessary to prevent splitting, holes shall be pre-drilled for nails and spikes.
3. Nails in plywood shall not be overdriven.
4. Machine Applied Nailing: Use of machine nailing is subject to a satisfactory Project site demonstration for each Project and review by the Engineer. Installation is subject to continued satisfactory performance. Machine nailing is not permitted for 5/16” plywood. Do not permit nail heads to penetrate outer ply. Maintain minimum allowable edge distances when installing nails.
    a. Powder Driven Fasteners:
        1. Loads shall not exceed 75 pounds unless indicated on the Drawings or when reviewed by the Architect.
        2. The operator, tool, and fastener shall perform the following as observed by the Engineer.
            a. Observe installation of first 10 fasteners.

b. Test the first 10 fasteners by performing a pullout test. Load shall be at least twice the design load, or 150 pounds, whichever is greater.
c. Random testing:

3. Load less than 75 lb. - approximately 1 in 10 pins.
4. Load 75 lb. or greater - 1/2 of the pins.
5. Failure of any test will result in testing of all installed pins.
6. Nail heads shall not break the outer skin of sheathing.
7. Non-compliant pins shall be replaced.

3.03 LAG SCREWS. Place by screwing; do not hammer drive into place. Install screws with anchorage embedment in piece lagged of not less than 60% of screw length or 8 diameters. Provide standard malleable iron or steel plate washer under heads. Bore a hole of same diameter and depth as shank. For threaded portion of screw, bore the hole with a bit not larger than base of thread.

A. Lag Screws:

1. When installing lag screws in a wood member, pre-drill hole as recommended by CBC.
2. Lag screws, which bear on wood, shall be fitted with standard steel plate washers under head. Lag screws shall be screwed and not driven into place.

3.04 BOLTS: Clamp members together and bore holes true to line and 1/32" larger than bolt diameter. Provide standard malleable iron or steel washers under heads and nuts when bearing on wood. Draw nuts up tight as installed and again just prior to being enclosed with other materials or at completion.

A. Bolts:

1. Lumber and timber to be fastened together with bolts shall be clamped together with holes for bolts bored true to line.
2. Bolts shall be fitted with steel plates or standard cut washers under heads and nuts. Bolts shall be tightened when installed and again before completion of the Work of this section.

3.05 WOOD SCREWS: When installing wood screws, pre-drill holes as recommended by CBC/UBC.

3.06 FRAMING ANCHORS: Framing anchors, joist hangers, ties, and other mechanical fastenings shall be galvanized or furnished with a rust inhibitive coating. Nails and fastenings shall be of the type recommended by manufacturer.

3.07 SILLS ON CONCRETE OR MASONRY: Anchor as indicated or required by Code. Tighten with washers and nuts to level bearing. Use pressure treated lumber or approved redwood.

3.08 STUD WALLS, PARTITIONS AND FURRING:

A. **Wood stud walls**, partitions and vertical furring shall be constructed of members of size and spacing indicated. Provide single plate at bottom and double plate at top unless otherwise indicated. Interior, nonbearing non-shear partitions may be framed with a single top plate, installed to provide overlapping at corners and at intersections with other wall and partitions or by metal ties as detailed.

B. **Walls and partitions** shall be provided with horizontal staggered blocking at least 2" nominal thickness and same width as studs, fitted snugly, and nailed into studs. Blocking shall be installed at mid-height of partition or not more than 7 feet on center vertically. Install wood backing on top of top plate wherever necessary for nailing of lath or gypsum board.

C. **Walls, partitions and furred spaces** shall be provided with 2" nominal thickness wood firestops, same width as space to be firestopped, at ceiling line, mid-height of partition and at floor line. Firestops at floor line are not required when floor is concrete. If width of opening is such that more than one piece of lumber is necessary, provide 2 thicknesses of one inch nominal material installed with staggered joints.

D. **Firestops shall be** installed in stud walls and partitions, including furred spaces, so the maximum dimension of any concealed space is not over 10 feet.

E. **Corners, and where wood** stud walls and wood vertical furring meet, shall be constructed of triple studs. Openings in stud walls and partitions shall be provided with headers as indicated and a minimum of 2 studs at jambs, one stud of which may be cut to support header in bearing.

F. **Where wood masonry or concrete** walls intersect, end stud shall be fastened at top, bottom and mid-height with one 1/2" diameter bolt through stud and embedded in masonry or concrete a minimum of 4". Bolts shall be provided with washers under nuts.

G. **Sills under bearing, exterior** or shear walls shall be bolted to concrete with 5/8" diameter x 12" long bolts spaced not more than 4 feet on center. There shall be a bolt within 9" of each end of each piece of sill plate. Sills shall be installed and leveled with shims, washers, with nuts tightened to level bearing. Space between sill and concrete shall be dry packed with cement grout.

3.10 CEILING FRAMING: Provide joists as shown, placed with crowning edge up. Conform to the following requirements unless otherwise indicated.

A. **Ceiling Framing**:

1. Wood joists shall be of the size and spacing indicated, installed with crown edge up, and shall have at least 4" bearing at supports. Provide 2"

solid blocking, cut in between joists, same depth as joists, at ends and bearings, unless otherwise indicated.

2. Floor joists of more than 4” in depth and roof joists of more than 8” in depth shall be provided with bridging. Floor joists shall be bridged every 8 feet with solid blocking or metal cross bridging. Roof joists shall be bridged every 10 feet.
3. Joists under and parallel to bearing partitions shall be doubled and nailed or bolted together as detailed. Whenever a partition containing piping runs parallel to floor joists, joists underneath shall be doubled and spaced to permit passage of pipes and blocked with solid blocking spaced at not more than 4 feet intervals.
4. Trimmer and header joists shall be doubled, when span of header exceeds 4 feet. Ends of header joists more than 6 feet long shall be supported by framing anchors or joist hangers unless bearing on a beam, partition, or wall. Tail joists over 12 feet long shall be supported at header by framing anchors or on ledger strips at least 2 x 4.
5. Provide solid blocking between rafters and ceiling joists over partitions and at end supports where indicated.

B. Beams, Girders and Joists:

1. Ends of wood beams, girders and joists which are 2 feet or less above finished outside grade and which abut, but do not enter concrete or masonry walls, as well as wood blocking used in connection with ends of those members shall be treated with wood preservative.
2. Where wood beams, girders and joists enter masonry or concrete walls 2 feet or less above outside wall, metal wall boxes or equivalent moisture barriers shall be provided between wood and masonry or concrete.

C. Bridging: Provide 2" solid wood blocking, cut in between joists for same depth as joist, as indicated.

3.11 NAILING STRIPS AND PLATES: Provide wood nailing strips, plates, and blocking as shown or required, securely nailed or screw fastened in place. Bolt wood strips and plates to metal. Use treated lumber for members on concrete or masonry.

3.12 WOOD BACKING: Provide wood backing to receive mechanical or electrical fixtures and equipment, bases, cabinets, door stops, wall plates, toilet accessories and partitions, and other fixed equipment or other fixed items, as indicated or required, securely nailed or screw fastened to framework. Coordinate locations with related trades.

END OF SECTION

SECTION 06200

FINISH CARPENTRY

PART 1 - GENERAL

1.01 DESCRIPTION: Division 1 applies to this Section. Provide and perform finish carpentry complete as indicated, specified, and required.

A. Work In This Section: Principal items include:

1. Plastic laminate countertops.
2. Decorative synthetic countertops.
3. Wood wall shelving
4. Installation of finish hardware except as otherwise specified.

B. Related Work Not In This Section:

1. Finish painting.
2. Furnishing hollow metal door frames.
3. Furnishing finish hardware for doors.
5. Mechanical connections, plumbing.
6. Electrical connections.

1.02 QUALITY ASSURANCE: Work of this Section shall conform to the Manual of Millwork of the Woodwork Institute (WI), Current Edition, grades as specified herein or indicated. Prior to delivery to site, submit WI Certified Compliance Certificates indicating each millwork product for the Work and that all products will fully conform to the WI grades and other requirements shown and specified.

A. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated, or if not indicated, as required by woodwork quality standard.

1. Manufacturer: Subject to compliance with requirements, provide high-pressure decorative laminates by one of the following:
   a. Formica Corporation.
   b. Nevamar Corp.
   c. WilsonArt Plastics Co.
   d. Laminart

1.03 SUBMITTALS: Refer to Section 01300 for procedures.

A. Shop Drawings: Submit for following items, bearing the WI Certified Compliance Grade Stamp.

1. Show locations of steel backing plate or wood blocking required for the anchoring of cabinets, casework, and other Work of this Section. This work to be done by others.

2. Plastic laminate finish countertops, each typical type.
3. Decorative synthetic countertops, each typical. Thickness as indicated and approved by Architect.

B. Samples and Product Data: Submit the following for selection and approval:

1. Adhesive. Approved type for required installation.
2. Plastic laminate patterns and colors for selections.
3. Solid Surface Materials, with all exposed edges polished. Thickness as indicated and approved by Architect.

PART 2 - PRODUCTS

2.01 MATERIALS AND MANUFACTURER: Conforming to WI Manual unless otherwise specified. Details on Drawings and requirements specified herein govern arrangement, sizes, construction, and fabrication. In all other respects, manufacture Work of this Section to conform to the WI grades specified.

A. Plastic Laminate Countertops: Units as detailed on drawings, conforming to WI Manual "Custom" grade, all self-edged unless otherwise shown.

1. Plastic Laminate Countertop Edges, conform to WI Standards “Custom” Grade at all locations.
   a. Front edge: Countertops without sinks as square, unless other detailed on drawings.
   b. Backsplash and Sidesplash top edges: Are square.
   c. Exposed countertop corners: Square corners.
2. Plastic Laminate Countertop Fabrication, conform to WI Standards. WI “Custom” Grade at all locations. For countertops in exitways where fire-resistive construction is required, construct in accordance with WI fire resistive specifications.
   a. Countertops shall extend 1/2” beyond faces of doors and drawers fronts along the front face of the base cabinets and 1-1/4” beyond the exposed ends of base cabinets (those ends not abutting walls).
   b. Unless otherwise indicated, all back and side splashes shall be 4” high.
   c. Provide support from below countertop, either by base cabinets or corbels spaced so that unsupported length does not exceed 36”.
   d. At each knee space and other locations to have communications or electrical receptacles installed below countertop, provide on 1-1/2” I.D. plastic grommet, black or color to match countertop/work surface, installed directly over the outlet, centered 1-1/2” from the back wall (if no backsplash) or 1-3/4” from face of backsplash.
   e. Plastic laminate corners are square where end of cabinet is exposed and corner subject to impact.

B. **Wood Wall Shelves**: Shelves of WI Manual "Custom" grade, all 3/4" thick, with edge banding.

C. **Decorative Synthetic Countertops**: WI Manual, "Premium" grade by Corian, or equal. Provide one piece countertops, minimum 3/4" thickness, with backsplash, full bullnose cove roll edge treatment and exposed edges polished. Seal the countertops per manufacturer's recommendations. Install in accordance with manufacturers instructions for this type in installation. The color to be selected by Owner/architect or as scheduled on drawings.

D. **Fire Resistive Adhesives**: For plastic laminates use and countertop segment adhesive use rigid (urea, resorcinol) adhesive complying with WI Type II Water Resistant adhesive approved type for required installation.

PART 3 - EXECUTION

3.01 INSTALLATION OF COUNTERTOPS: Perform by manufacturer's skilled and experienced mechanics according to the approved submittals, scribed to walls and adjoining surfaces, using first class workmanship throughout. All installation shall conform to the WI Manual of Millwork.

3.02 INSTALLATION OF FINISH CARPENTRY:

A. **General**: Conform to Drawings, approved submittals, and the WI Manual. Repair all damage as approved.

3.03 INSTALLATION OF FINISH HARDWARE: Install hardware supplied under Section 08710, excluding only hardware specified to be installed at the factory or under other Sections. Drill pilot holes for screws and screw home; hammer driving of screws is not allowed. After installation and fitting, remove finish hardware items on surfaces to be painted, except prime coat items, repack in original containers, and perform final installation, testing, and adjustment after finish painting is completed. Adjust hinges to swing smoothly but not loosely, without sticking or hinge-bound conditions. Adjust other hardware for correct operation.

END OF SECTION

SECTION 07210

BUILDING INSULATION

PART 1 - GENERAL

1.01 DESCRIPTION: Division 1 applies to this Section. Provide building insulation complete as indicated, specified, and required.

A. Work In This Section: Principal items include:

1. Thermal batt insulation for exterior walls and under roof deck and above ceilings where indicated on drawings.

B. Related Work Not In This Section:

1. Sound insulation in interior partitions in Section 09250.
2. Insulation for mechanical systems in Division 15.

PART 2 - PRODUCTS

2.01 MATERIALS:

A. Thermal Batt Insulation: Per ASTM C665, Type III, Class A, FSK, labeled flame spread of 25 or less and smoke developer of less than 450 where exposed or required by Code the greater of, R-30 for roof and R-19 for exterior walls or as indicated on drawings unless otherwise indicated or required by Code, batts with flanges for use under roof decks and friction-fit batts for use above ceilings in studs and metal framing. Type II batts with kraft facing to be used in areas enclosed by incombustible finish materials provided such batts and usage are approved by Building Department or as specified in fire rated assemblies. Manufacturer shall match those specified in the fire rated assemblies noted on the drawings. Insulation type and facing shall match that required by indicated fire assemblies.

B. Staples: Stainless steel, monel, or copper-coated steel, size directed by batt manufacturer.

C. String Wires: Minimum 18 gage galvanized steel wire.

PART 3 - EXECUTION

3.01 INSTALLATION OF BATTS: Install all batts with close fit, free of gaps, holes, or sagging. Maintain a nominal 3/4" air space between insulation and interior wall or ceiling finish material. Staple flanges at 4" centers and ensure batt facings form a continuous vapor barrier. Provide taut stretched string wires along the center of horizontal or sloping batts where support spacing exceeds 16" on centers.

A. **Wood Framing**: Provide friction-fit batts, tightly fitted to stud webs and wood furring.

B. **Roof Decks**: Install insulation secured with staple flanges together at 4" centers. Seal all stapled flanges and the joints at abutting vertical surfaces with pressure-sensitive plastic tape, forming a continuous vapor barrier. Provide 18 gage galvanized string wires under batts where necessary to prevent sagging, stretched taut.

END OF SECTION

SECTION 07270

FIRESTOPPING

PART 1 - GENERAL

1.01 DESCRIPTION: Division 1 applies to this Section. Provide firestopping and smokeseals complete as indicated, specified, and required.

A. Work In This Section: Principal items include:

1. All openings in fire-rated floors and walls both empty and those accommodating penetrating items such as cables, conduits, pipes, ducts etc.
2. Head of wall openings between walls and connecting floors or roof assemblies.
3. Expansion joints in fire-rated walls and floors.

B. Related Work Not In This Section:

1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
2. Vertical fire spread at exterior curtain walls.

1.02 QUALITY ASSURANCE: Firestopping materials shall conform to ratings as per ASTM E-814 (UL-1479). The ratings must be a minimum of one hour, but not less than the fire resistance rating of the assembly being penetrated. Fire tests shall be conducted with a minimum positive pressure differential of 0.03" of water column. Systems and materials and must be listed by one of the appropriate agency: UL, ICBO, California State Fire Marshal.

1.03 SUBMITTALS: Refer to Section 01300 for procedures.

A. Product Data: Within 35 calendar days after the Contractor has received the Owners notice to proceed, submit:

1. Materials list of items proposed to be provided under this Section.
2. Manufacturer's specifications, test data, and other data required to provide compliance with the specified requirements.
3. Manufacturer's recommended installation procedures which, when approved by the Architect, will become the basis for accepting or rejecting actual installation procedures used on the Work.

1.04 PRODUCT HANDLING: Protect the materials of this Section before, during and after installation, and protect the work and materials of all other trades. In the event of damage, immediately make replacements and repair to the approval of the Architect and at no additional cost to the Owner.

PART 2 - PRODUCTS

2.01 FIRESTOPPING:

A. **Manufacturers**: Where firestopping or smokeseals are called for on the Drawings or as specified herein, provide materials manufactured by one (1) of the following manufacturers:

1. Hilti Corporation
2. Dow Corning Corp., (517)496-4000.
3. 3M Contractor Products, (800)328-1687.
4. USG, (800)964-4874.
5. Tremco, Trimstop, (800) 551-3949

B. **Materials**: All materials shall restrict the transmission of temperature as well as the passage of flame, smoke and water. Materials shall be tested under ASTM E-814 (UL 1479) and pass.

1. Firestop Mortar: Single component portland cement/fly ash mortar. Requiring no support or anchoring devices to pass water hose stream tests.
2. Firestop Sealant: Single component sealant, use gun grade for walls and overhead. Intumescent, endothermic sealant, caulk or mastic as required by Code for approval.
3. Backing Material: Mineral wool, 4 pcf thickness manufactured by USG or approved equal.
4. Firestop Sleeve: Fabricated sleeve, collar or boot used around plastic pipe and other penetrations in fire-rated walls.
5. Firestop Compound: Firestop compound as required by system for Code approval.
6. Metal Components: Provide metal components as required by system manufacturer to meet fire test requirements.
7. Firestop Wrap Strips: Use intumescent wrap strips as required for Code approval.
8. Firestop Pillow System: A moisture resistive senstive bag containing semi-intumescent material.
9. FireMaster Duct Protection System: A encapsulated fireproof blanket system for up to a 2 hour UL rating.
10. Safing Insulation: UL approved, incombustible, by USG, Tremco, or equal, with Code approved galvanized steel closures, clips, and ties to secure insulation and conform to Code.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS: Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.02 PREPARATION: Prepare the surface in accordance with approved manufacturer's recommendations.

3.03 APPLICATION: Apply the approved system and product to the designated surfaces in strict accordance with the manufacturer's recommended application procedures meeting Code requirements and approved by Architect. Firestop systems and materials shall have no adverse effect on the overall fire-rating or structural integrity of the wall or floor assembly.

END OF SECTION

SECTION 07600

SHEET METAL

PART 1 - GENERAL

1.01 DESCRIPTION: Division 1 applies to this Section. Provide sheet metal items complete as indicated, specified, and required.

A. Work In This Section: Principal items include:

1. Sheet metal flashings in connection with roofing.
2. Reglet and counterflashing assemblies.
3. Miscellaneous metal flashing and counterflashing as required, except where provided by mechanical and electrical trades.
4. Gutters and downspouts.
5. Wall flashings.
6. Drip flashings.
7. Coping caps.
8. Splash pans.
9. Equipment platforms.
10. Shop priming and field touch-up.
11. Calking.

B. Related Work Not In This Section:

1. Sheet metal in connection with Plumbing, Air Conditioning, and Electrical.
2. Metal accessories for drywall, lathing, and acoustical treatments.
3. Finish painting.
4. Sleeves for embedded items.
5. Built-up roofing.

1.02 QUALITY ASSURANCE: Drawing details and requirements herein govern, if required items are not detailed then SMACNA requirements are to be adhered to and coordinate instructions with manufacturers. Conform to the current "Architectural Sheet Metal Manual" published by Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA) for conditions not indicated or specified and for general fabrication of sheet metal items.

1.03 SUBMITTALS: Refer to Section 01300 for procedures.

A. Shop Drawings: Submit for fabricated sheet metal showing details, methods of joining, anchoring and fastening, thicknesses and gages of metals, concealed reinforcement, expansion joint details, sections, and profiles.

B. Samples and Product Data: Submit Samples and data for materials or assemblies as Architect may request.

PART 2 - PRODUCTS

2.01 BASIC MATERIALS:

Galvanized steel:	ASTM A525, coating G90, mill phosphatized for paint or waterproofing adhesion, 26 gage unless otherwise indicated or specified.
Aluminum:	T6065-T5 alloy, temper best suited for each purpose.
Lead:	FSQQ-L-201 4 lbs. sheet lead
Solder:	ASTM B32, B284.
Solder flux:	Standard brand non-corrosive acid-base type.
Fasteners:	Zinc or cadmium coated steel or stainless steel.
Felt:	ASTM D226, 30-pound type.
Primer:	Approved brand of zinc-dust zinc-oxide primer per Section 09900 with manufacturer's pretreatment materials.
Sealant:	Conforming to Section 07900.

2.02 RELATED MATERIALS:

A. **Reglets and Counterflashings**: Fry Reglet Corp. flashing systems complete with unions and preformed corners of necessary types for particular locations, of 26 gage galvanized steel, or approved equals by Metco Metal Products Co., Pacific Loxtite Flashing Co., National Cornice Works, Redco, Lane-Air, or equal. Use single manufacturer's products throughout equivalent to Type CO at concrete, Type MA at masonry, Type ST at plaster, or Type SM, as required by Drawings and details.

2.03 GENERAL FABRICATION REQUIREMENTS: Fabricate to avoid distortion and overstress of fastenings due to expansion and contraction. Provide expansion joints where necessary in continuous runs of sheet metal, constructed watertight and spaced 30-feet apart maximum. Lock and solder corners and blind hem exposed edges. Make joints with 4" lap and solder unless otherwise shown or specified. Fill single lock seams with sealant where soldering is not feasible. Extend flanges 4" minimum onto roof and wall surfaces. Fabricate sheet metal items in nominal 8-foot lengths unless otherwise shown or specified. HEM ALL EXPOSED EDGES.

A. **Soldering**: Do soldering slowly, immediately after application of flux, seams showing evenly flowed solder. Clean and neutralize finished soldering.

B. **Shop Priming**: Clean completed items, apply pretreatment, and prime all exposed surfaces with specified primer.

2.04 FABRICATED ITEMS: Of 24 gage galvanized steel as indicated on drawings except as otherwise indicated or specified.

A. **Coping Caps**: Corner units having maximum 18" long legs and joints locked and soldered watertight, intermediate joints at maximum 8-foot centers and equally

spaced. Make intermediate joints of the flush butted type, edges spaced about 1/4" apart and centered over an 8" long backing plate of same profile and gage as the cap, set in a 1/2" wide bead of sealant. Secure both edges with 1-1/2" wide 20 gage galvanized steel cleats spaced at maximum 32" centers and locked into drip hem.

B. **Drip Flashings**: Hemmed exposed edges, 1-piece lengths.

C. **Wall Flashings**: As detailed, all joints locked and soldered, top edge beaded for stiffening.

D. **Equipment Platforms**: All joints locked and soldered watertight, flanges extending at least 4" into roofing, outer edges hemmed.

E. **Custom Fabricated Items**: Fabricate in accordance with SMACNA requirements for each item. Provide to Architect shop drawings for approval prior to fabrication. Fabricate from materials using the proper alloy, oz. and thickness to prevent oil canning or telegraphing of any concealed fastener. Finish shall be "Bare" mill as scheduled on drawings. Install in accordance with approved shop drawings.

PART 3 - EXECUTION

3.01 GENERAL INSTALLATION REQUIREMENTS: Install metal items as indicated, according to approved submittals, and as required to complete the Work. Securely fasten and assemble, and make watertight and weathertight. Back prime items with asphalt bitumen when in contact with concrete at grade.

A. **Coordinate Sheet Metal Items** in connection with roofing for proper installation, and furnish in sufficient time to avoid delay in roofing construction. Install roofing sheet metal simultaneously with roofing.

B. **Calking**: Provide sealant calking as indicated and required to seal and complete Work of this Section. Conform to Section 07900.

C. **Isolation**: Isolate sheet metal from contact with concrete or masonry with one layer of roofing felt or asphalt bitumen, except embedded items. Field preparation or cleaning of sheet metal items to receive paint or waterproofing products is unacceptable.

D. **Provide Corner Heel Flashings** for all flashings that intersect walls, columns, door jambs, etc. Heel flashings well be fabricated to weather board lap with adjacent flashing and or building paper felts. Heel flashings indicated on drawings are minimums and do not indicate all intersections variations but are intended to indicate intent.

3.02 COMPLETION: Examine installed sheet metal, water test if necessary or directed, and correct damaged or defective items.

END OF SECTION

SECTION 07900

CALKING AND SEALANTS

PART 1 - GENERAL

1.01 DESCRIPTION: Division 1 applies to this Section. This Section covers calking of openings and joints indicated, specified, and required to make the entire building weatherproof and watertight and also covers calking requirements for the entire Work and pertains to any Section requiring calking, unless specified in that Section otherwise. Coordinate with Firestopping Section 07270 for fire rated joint materials and Painting Section 09900 for coordination between calking and paint adhesion requirements.

1.02 QUALITY ASSURANCE: Provisions of the General Conditions will apply. Employ a specialist calking contractor having not less than 5 years experience in calking installations of size and complexity required for the Work. Prior to award of any subcontract for calking, submit qualifications and project history of the proposed Calking Subcontractor.

1.03 SUBMITTALS: Refer to Section 01300 for procedures.

A. Samples and Data: Submit the following:

1. Samples of cured sealants showing full range of designated colors; obtain color instructions from Architect prior to submittal.
2. Technical data by manufacturers of proposed materials.
3. Material manufacturers' printed preparation and application instructions; when approved, furnish copies to other trades.

1.04 PRODUCT DELIVERY: Deliver calking and sealant materials in unopened factory labeled containers, each label bearing statement of conformance to standards specified for each material.

1.05 WARRANTY: Furnish a written warranty against defects in materials for 5 years and defects in workmanship for 2 years, covering all loss of adhesion or cohesion, deterioration, color changes, leaking, and other defects.

PART 2 - PRODUCTS

2.01 MANUFACTURERS: Provide sealants by one or more of the following manufacturers; Pecora Corporation, Dow Corning, Tremco, Sonneborn, General Electric and Johns Manville or approved equals.

2.02 MATERIALS: Furnish sealants meeting following in-service requirements: Normal curing schedules are acceptable; Non-staining, color fastness (resistance to color change), and durability when subjected to intense actinic (ultra-violet) radiation are required. Furnish the products of only one manufacturer unless otherwise approved, sealant colors

as selected to match the adjoining surfaces; special colors may be required. Use sealants selected from the following types where required on drawings and as appropriate to the joint being sealed.

A. **Type A Sealant**: NR 200 Urexpan Sealant, self-leveling two-part urethane Type I, conforming to FS SS-T-00227 and ASTM D1850 as manufactured by Pacora or approved equal.

B. **Type B Sealant**: Dymeric Sealant, three-part expoxidized polyurethane sealant conforming to FS SS-T-00227 Type II, Class A as manufactured by Tremco or approved equal.

C. **Type C Sealant**: Dow Corning 999 Silicone Glazing Sealant, one-part silicone rubber sealant conforming to FS TT-S-001543A and FS TT-S-00230C or approved equal.

D. **Type D Sealant**: Sikaflex 1A polyurethane conforming to FS TT-S-00230C, Type II, Class A or approved equal.

E. **Type E Sealant**: Sanitary 1700 Silicone Rubber Sealant with mold inhibitors, as manufactured by General Electric or approved equal.

F. **Type F Sealant**: Type 3-6548 Silicone RTV foam as manufactured by Dow Corning or RTV850 as manufactured by General Electric or Fire Resistive Joint Sealing System as manufactured by Trimco with backup of Cerablanket-FS backups, primers and bond breakers as manufactured by Johns Manville.

G. **Type G Sealant**: Proglaze System, including silicone construction sealant, Polyslim Tape, Poly-Wej gasket, Aro-Shim spacer and CCN sponge, as manufactured by Trimco or approved equal.

H. **Type H Sealant**: Trimco Acoustical Sealant or approved equal.

I. **Type I Sealant**: Trimco Proglaze or approved equal.

J. **Type J Traffic Bearing Application**: Furnish multi-component self leveling, non-tracking sealant with Shore "A" Hardness range of 40 to 55 where subject to foot or vehicular traffic, meeting requirements of ASTM 920-79 or Federal Specification TT-S-227E, "Sealing Compound, Elastomeric Type, Multi-Component".

1. HPL, by Tremco.
2. SL-2, by Sonneborn.
3. Dynatred, by Pecora.

K. **Sealant Primer**: Non-sagging sealant meeting requirements of ASTM C920-79. Sealant primer as recommended by sealant manufacturer.

L. **Joint Cleaner**: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.

M. **Joint Backing Material**: ASTM D1056 or ASTM D1565; round, closed cell polyethylene urethane or neoprene foam rod; oversized 30 to 50 percent larger than joint width; Ethafoam manufactured by Pacora.

N. **Bond Breaking**: Pressure sensitive tape as recommended by sealant manufacturer to suit application.

PART 3 - EXECUTION

3.01 INSPECTION: Refer to Section 01450. Inspect surfaces and joints to be calked. Report to Architect in writing all conditions that prevent correct preparation, priming, and calking installation.

3.02 TECHNICAL ASSISTANCE: Furnish sealant manufacturer's technical field assistance as required to ensure proper use of sealants, preparation, and application.

3.03 PREPARATION AND PROTECTION: Conform to sealant manufacturer's instructions and apply materials to clean dry surfaces free of grease, oil, wax, or other matter that destroys or impairs adhesion. Remove lacquer and apply temporary masking tape on both sides of joints where surface staining may occur. Fill joints with joint backing material until the joint depth does not exceed 50% of joint width. Provide bond breaker to prevent bonding of sealant to backing material wherever joints exceed 1/2" width, or joint width is shown or required to exceed depth. Prime surfaces as required by manufacturer's instructions.

3.04 APPLICATION: Do not exceed 3/8" sealant depth unless specifically dimensioned. Minimum joint width is 1/8" for metal to metal joints and maximum 3/4" width elsewhere unless otherwise shown. Apply all sealant under sufficient pressure to fill voids. Finish exposed joints smooth and flush with adjoining surface unless recessed joints are shown. Remove temporary masking as soon as joint is completed.

3.05 SCHEDULE: Sealants shall conform to the following application schedule

A. Expansion and Control Joints in Masonry and Concrete. - Type B.

B. Expansion and Control Joints in Glass, Aluminum and Plastic. - Type C.

C. Expansion and Control Joints in Horizontal Traffic Surfaces. - Type A

D. Nonexpanding Joints in Concrete, Masonry, Aluminum, Steel and Wood: - Type D

E. Nonexpanding Joints in Glass and Plastic: - Type A

F. Around Plumbing Fixtures in Toilet and Bath: - Type E

G. Mechanical, Ductwork and Air Conditioning: - Type D

H. Acoustical Applications: - Type H

I. At Floor, Wall and Ceiling Penetrations Requiring Vibration Isolation, Sound or Fire Rating: - Type F

J. At Window Wall Where Channel Glazing is Required: - Type I

K. Cross Joints in all Copings: - Type D

L. Any Gypsum Board Joints and/or Settings: - Type D

M. For Sink Areas Including Countertop Joints: - Type C

N. Intersection of Wall Surface and Metal Cap Strip at Resilient Flooring Integral Cove Sealant: - Type D

O. Traffic Bearing Application: - Type J

3.06 CLEANING: Clean material from surfaces not to receive sealant and restore the finish as required. If surfaces adjoining joints are stained and cleaning is not acceptable, remove the affected Work and provide new Work as directed and approved, at no extra cost to Owner.

END OF SECTION

SECTION 08110

HOLLOW METAL

PART 1 - GENERAL

1.01 DESCRIPTION: Division 1 applies to this Section. Provide hollow metal items complete as indicated, specified, and required.

A. Work In This Section: Principal items include:

1. Hollow metal doors.
2. Hollow metal frames.

B. Related Work Not In This Section:

1. Installation of hollow metal doors and frames.
2. Furnishing finish hardware for hinged metal doors.
3. Glazing in hollow metal.
4. Grouting or back-plastering of hollow metal frames.

1.02 QUALITY ASSURANCE:

A. Requirements of Regulatory Agencies: Construct labeled openings in accordance with SDI Standards and Specifications, ANSI/SDI-100 and manufacturer's standard procedures filed with and approved by UL. In accordance with NFPA provide required UL and WHI labels on doors and frames.

B. Tolerances: Provide hollow metal door and frame assemblies having maximum 3/32" gap between top and side edges of wider door face and frame after installation, and maximum 1/4" clearance above finish floor except as otherwise required by floor finish material; provide maximum 3/32" gap between door edges at meeting stiles of pairs of doors.

1.03 SUBMITTALS: Refer to Section 01300 for procedures.

A. Shop Drawings: Submit Shop Drawings fully detailing materials, finishes, sizes, profiles, moldings, location of hardware items with reinforcement, and methods for anchoring, assembly, and erection.

B. Samples: Submit following Samples if requested by Architect:

1. Frame corner construction.
2. Door panel and edge construction.
3. Glazing stop corners.

C. Product Data: Submit certified test reports for STC-rated doors.

PART 2 - PRODUCTS

2.01 MATERIALS: As supplied by one of following manufacturers subject to conformance with requirements herein; refer to Section 01600 for substitutions:

1. Overly Manufacturing Co.
2. Krieger Steel Products Co.
3. Steelcraft Manufacturing Co.
4. Amweld Metal Doors and Frames.
5. Ceco Door Products.
6. Republic Builders Products.

A. **Types**: The sizes, types, thicknesses, profiles, details, and features indicated for doors and frames govern. In all other respects, provide doors and frames as standard with manufacturer except as specified herein. Where doors and frames are to be exterior type, provide galvanized steel shop primed in lieu of steel.

B. **Hollow Metal Doors**: Flush seamless type, 16 gage steel exterior applications and 18 gage at interior applications, one-piece face panels, all parts welded and finished flush and smooth. Reinforce face panels with internal welded stiffeners, or bond to a plastic-treated honeycomb core or a foamed plastic core except foamed plastic is not allowed for labeled doors. Fill hollow core doors with mineral wool material to eliminate all metallic ring. Insulated doors fabricated by Ceco Imperial Series foamed polyurethane core with a R-14.97 rating, U-0.067 rating and STC of 26. Provide flush top edges of exterior doors. Reinforce the top, bottom, and both edges according to manufacturer's standards. Finish both face panels and all edges smooth and free of seams and distortion. Provide 1-3/4" by 12 gage full-height astragal on active leaf of pairs of doors.

1. Glazed Lights In Doors: Manufacturer's standard steel assembly, one side integral with door and other side equipped with applied steel stops of minimum 18 gage steel, one piece lengths, secured within 3" of ends and at 9" centers with oval-head screws.

C. **Hollow Metal Frames**: Form the stops integral with frames. Reinforce heads over 42" wide with a full-length 12 gage channel. Provide frame anchors as required, not less than 3 anchors per jamb, except 4 anchors for openings over 7'-0" high. Provide galvanized steel plaster guards back of cutouts for hinges or mortised hardware on frames installed in concrete, masonry, or plaster. Fabricate frames of 14 gage or heavier gage steel if required by UL label requirements.

1. Exterior Frames: Fabricate exterior frames of minimum 16 gage steel, weld all joints, all exposed welds ground smooth and flush.
2. Interior Frames: Fabricate interior frames of minimum 16 gage steel, weld all joints ground smooth and flush

D. **Hardware Preparation**: Prepare, reinforce, mortise, drill, and tap the doors and frames according to the templates supplied by the hardware supplier, reinforcing as standard with door and frame manufacturer except minimum 10 gage steel behind butts and 12 gage steel for mortised or surface-applied hardware. Conform to ANSI A115 Series as applicable to the hardware specified in Section 08710 unless otherwise indicated.

E. **Finish**: Thoroughly clean all surfaces and chemically treat for paint adhesion. Paint inaccessible surfaces before assembling. Sand exposed surfaces of hollow metal and accessories and make smooth with mineral filler as required. Apply a baked-on coat of manufacturer's standard rust inhibitive primer, including all interior surfaces of door frames.

PART 3 - EXECUTION

3.01 EXAMINATION: Examine supporting structure and conditions under which hollow metal is to be installed. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. **Install hollow metal in accordance** with reviewed shop drawings and manufacturer's printed instructions. Securely fasten and anchor work in place without twists, warps, bulges or other unsatisfactory or defacing workmanship. Set hollow metal plumb, level, square to proper elevations, true to line and eye. Set clips and other anchors with Ramset "shot" anchors or drill in anchors as approved. Units and trim shall be fastened tightly together, with neat, uniform and tight joints.

B. **Placing Frames**: Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces and spreaders leaving surfaces smooth and undamaged. In masonry construction, building-in of anchors and grouting of frames with mortar is specified in Section 04220 - Concrete Unit Masonry. Install all frames plumb, straight, in true alignment, rigidly connected to walls and building structure. Erect in proper sequence with other trades to prevent delays. Erect within the tolerances specified or shown in the approved submittals.

C. **Place fire-rated frames** in accordance with NFPA Standard #80.

D. **Door Installation**: Fit hollow metal doors accurately in their respective frames, within following clearances: Jambs and head 3/32 inch, meeting edges pair of doors 1/8 inch, sill where no threshold 1/4 inch above finished floor. Place fire-rated doors with clearances as specified in NFPA Standard #80.

3.03 ADJUSTING AND CLEANING

A. **Prime Coat Touch-Up**: Immediately after installation, sand smooth rusted or damaged areas of prime coat and apply touch-up of compatible air-drying primer.

B. **Protection Removal**: Immediately before final inspection, remove protective wrappings from doors and frames.

END OF SECTION

SECTION 08210

WOOD DOORS

PART 1 - GENERAL

1.01 DESCRIPTION: Division 1 applies to this Section. Furnish and deliver wood doors complete as indicated, specified, and required.

A. Work In This Section: Principal items include:

1. Wood doors.
2. Wood Bi-fold interior doors, match existing.
3. Installation of wood doors including hardware.

B. Related Work Not In This Section:

1. Hollow metal door frames.
2. Furnishing finish hardware for wood doors.
3. Glass and glazing.
4. Finish painting except for prefinished wood doors.

1.02 QUALITY ASSURANCE:

A. Reference Standard: Furnish doors conforming to National Wood Window and Door Association (NWWDA) and WI Manual for Hardwood Veneered Flush Doors unless otherwise required herein.

B. Rejected Doors: Furnish new doors conforming to requirements of this Section as replacements for doors rejected because of damaged surfaces, improper fitting or hardware preparation, or other cause, at no extra cost to Owner. Patching is not permitted for correction of defects.

C. Fire-Rated Door Assemblies: Where fire-rated door assemblies are indicated or required, provide fire-rated door and frame assemblies that comply with UL and NFPA 80 "Standard for Fire Doors and Windows", and have been tested, listed and labeled in accordance with ASTM E152 "Standard Methods of Fire Test of Door Assemblies", by a nationally recognized independent testing and inspection agency acceptable to authorities having jurisdiction.

D. Labeled Fire Doors and Frames: Doors and Frames designated to be labeled shall bear either UL or the "Warnock Hersey International Inc." label. The Door and Frame supplier must be a Warnock Hersey authorized door and frame supplier. Rating of assembly shall be as listed in door schedule.

1.03 SUBMITTALS: Refer to Section 01300 for procedures.

A. **Samples**: Submit Samples of the following unless waived by Architect.

1. Face veneer.
2. Door construction.
3. Baked enamel finish colors for specified items, conforming to Architect's prior instructions.

B. **Product Data**: Submit the following:

1. Manufacturer's specifications for all wood doors.

C. **Certificates**: Submit certificates by manufacturer that doors supplied conform to or exceed requirements of these Specifications.

1.04 WARRANTY: Refer to Section 01740 for warranty form. Furnish to Owner a written warranty, subject to provisions of the WI Manual or NWWDA "Standard Door Guarantee" except as modified herein, against defects in materials and workmanship for the following periods:

1. Solid core panel doors - 2 years.
2. Interior flush doors - Life of door

PART 2 - PRODUCTS

2.01 MANUFACTURE: By one of the following manufacturers subject to conformance with requirements shown or specified; refer to Section 01600 for substitutions:

Eggers Industries, Inc. (920) 793-1351
Marshfield Door Systems, Inc. (650) 579-5829

2.02 SOLID CORE WOOD DOORS: Solid core, conforming to the above reference standard and to requirements herein, either 5-ply for transparent finish, as approved by the Architect.

A. **Core**: Staved glued low-density lumber core, or solid particleboard core with minimum 28 pcf density conforming to Type I, Density C, Class I of CS 236, hot press resin bonded.

B. **Edges**: Minimum total 1-1/18" wide top and bottom rails with minimum 1/2" thick hardwood edge banding, and minimum total 1-3/8" wide stiles with minimum 1/2" thick hardwood edge banding, 1-piece or laminated. Fully bond laminated edge strips together and to core before cross banding is applied. Provide vertical edge banding of species to match face veneers for transparent finished doors.

C. **Crossbanding**: For 7-ply doors, two layers of minimum 1/16" thick hardwood extending to four edges of door, grain applied vertical and horizontal.

D. **Face Veneer**: Of following type:

1. Opaque paint finished interior doors - "Sound" grade birch or other dense closed grain hardwood, or a paintable medium density plastic overlay to match existing.

E. **Adhesives**: For interior doors, Type I or II for cores, crossbanding, and face veneers.

2.03 LABELED SOLID CORE WOOD DOORS: Face veneers as specified above, conforming to UL re-examination label requirements for the rating scheduled, bearing required UL label on hinge stile. Provide lock blocks 5" wide at top and bottom rails and where required for hardware reinforcement. For fire rated doors use mineral cores and fire treated stiles.

2.04 DOOR LOUVERS: Inverted chevron units with straddle type frames, minimum 20 gage steel, welded construction, Air Louvers Ltd. 600-A, Anemostat-West CHDL-2F, or equal, with factory baked enamel finish to match door frames.

2.05 HOLLOW CORE DOORS: Same as solid core doors, including face veneers and edges, except hollow core construction of manufacturer's "Institutional" grade; include a horizontal rail near mid-height. Provide lock blocks on both stiles, minimum 4" by 24", and minimum 10" high solid top and bottom rails.

2.06 PREFINISHED WOOD DOORS: After prefitting and premachining for hardware, finish wood doors at the factory or mill in accordance with Section 09900 using stain and lacquer for transparent finish and enamel for opaque paint finish. Include finishing on top and bottom edges of doors.

2.07 SEALING: Seal all door edges with clear resin sealer at factory or mill, except prefinished doors.

PART 3 - EXECUTION

3.01 INSTALLATION OF WOOD DOORS: Install doors in accordance with NWWDA and WI Manual requirements except as modified herein. Field trimming of prefit doors is not allowed. Fit doors square and plumb with frames with due allowance for possible swelling and shrinking, maximum 1/8" clearance at top, edges, and meeting stiles, and 3/8" clearance at sill unless otherwise indicated or required by floor or threshold finish. Round arises to 1/16" radius. Bevel lock stiles to conform to lock and latch hardware.

3.02 INSTALLATION OF FINISH HARDWARE: Install hardware supplied under Section 08710, excluding only hardware specified to be installed at the factory or under other Sections. Drill pilot holes for screws and screw home; hammer driving of screws is not

allowed. After installation and fitting, remove finish hardware items on surfaces to be painted, except prime coat items, repack in original containers, and perform final installation, testing, and adjustment after finish painting is completed. Adjust hinges to swing smoothly but not loosely, without sticking or hinge-bound conditions. Adjust other hardware for correct operation.

END OF SECTION

SECTION 08410

ALUMINUM DOOR FRAMES FOR INTERIOR PARTITIONS

PART 1 - GENERAL

1.01 DESCRIPTION: Division 1 applies to this Section. Provide aluminum door frames for interior partitions complete as indicated, specified, and required.

A. Work In This Section: Principal items include:

1. Aluminum interior door frames.
2. Factory finish on aluminum surfaces.
3. Calking and sealing.

B. Related Work Not In This Section:

1. Furnishing finish hardware for all doors.
2. Glass and glazing specified elsewhere.

1.02 QUALITY ASSURANCE:

A. Quality Standards: In addition to Code, glass installations shall comply with ANSI Z97.1, as applicable, and Federal Safety Standard 16 CFR 1201. Metal Curtainwall, Window, Storefront, Entrance and ANSI/AAMA 101 and 910 for C-AW65 rating guide specification manual published by A.A.M.A. Fluoropolymer paint coatings shall conform with the requirements of AAMA 605.

B. To Establish Level of quality and performance, drawings and specifications are based upon Western Integrated Materials, Inc., “Design as Detailed”, (323) 261-9600.

C. Reference Sections: Requirements specified in Section 07900, "Calking and Sealants" are a part of this Section, including submittal and warranty requirements.

1.03 SUBMITTALS: Refer to Section 01300 for procedures.

A. Shop Drawings: Submit Shop Drawings for all Work of this Section, prepared and approved in advance of fabrication. Show materials, finishes, sizes, profiles, moldings, dimensioned locations of hardware items with reinforcement, methods of anchoring, assembly, erection, internal drainage, isolation, glazing procedures and materials, and calking. Include the manufacturer's technical and structural data. Include structural calculations showing that materials proposed for use conform to load and deflection requirements specified.

B. **Samples and Product Data**: Obtain Architect's instruction prior to submission. Submit the following:

1. Door sections with specified finish, corner and intersecting joint construction, fasteners, and accessories.
2. Glazing channels with manufacturer's data covering materials and warranty.
3. Samples of glasses as requested.
4. Cured sealant colors.

C. **Certificates**: Submit from manufacturer stating the quality, thickness, and type of all unlabeled glass delivered to the site for field cutting.

D. **Purchase Orders**: Within 30 working days after execution of the Contract, submit evidence that firm purchase orders for all glass required for the Work have been placed with the glass suppliers.

1.04 JOB CONDITIONS:

A. **Job Measurements**: Refer to Section 01400. Verify field measurements pertaining to this Section. Report all detrimental differences between Drawings and field dimensions to Architect before fabricating Work of this Section.

B. **Protection**: Protect Work of this Section until completion and final acceptance. Repair or replace damaged or defective Work to original specified condition, at no additional cost to Owner. Damaged or defective Work includes surfaces which cannot be acceptably cleaned or repaired.

1.05 WARRANTIES: Refer to Section 01740 for warranty form.

A. **Aluminum Doors**: Warranty against sagging or twisting of all doors as a result of normal usage for the lifetime of the installation.

B. **Glazing Channels**: Warranty for 5 years deterioration or failure of any kind including, without limitation, shrinkage causing loss of seal and failure from exposure to sun, elements, ozone, air pollution, and glass cleaners.

PART 2 - PRODUCTS

2.01 MATERIALS: Extrusions shall be 6063-T5 alloy and temper (ASTM B221, Alloy 6.5. 10A-T5). Fasteners, where exposed, shall be aluminum, stainless steel or zinc plated steel in accordance with ASTM A164. Perimeter anchors shall be aluminum or steel, providing the steel is properly isolated from the aluminum. Glazing gaskets shall be elastomeric extrusions. Major portions of door stiles shall be nominal .130" in thickness and windows thickness of .062". Glazing moldings shall be .050" thick, unless other dictated by “Rectilinear Series” specifications prepared by Western Integrated Materials.

A. **Types**: Details shown establish required sizes, types, and appearance. Provide for expansion and contraction through an ambient temperature range of 20 degrees to 130 degrees F., minimum.

B. **Manufacture**: Minor modifications in non-essential details to accommodate the use of manufacturer's standard sections of same sizes, profiles, and glazing features are acceptable, subject to approval. Provide products of one of the following manufacturers, or equal; refer to Section 01600 for substitutions:

Western Integrated Materials
Wilson Partitions

C. **Door Members**: Provide complete as detailed and required, including glass setting bars, transom bars, trim, mullions, and door frames. Provide necessary-setting accessories, including screws, fittings, and anchors. Design all joints and connections for flush tight hairline fitting and to allow for structure and thermal movement and deflections without loss of glass edge grip and clearances or watertight integrity.

D. **Wind Load and Deflection**: Provide members of section thickness and structural properties designed to withstand Code required wind loadings without buckling, distortion, or distress, and with maximum deflection of L/175 of the unsupported length, except minimum 20 pounds per square foot wind loading where Code allows lesser load. Provide additional bent plate or rolled steel internal stiffeners where necessary to meet deflection requirements. Pre-coat stiffeners with heavy bituminous coating to isolate from aluminum. Conform glass edge bearings and clearances to CBC and UBC code.

E. **Fasteners**: Place no fasteners on exposed surfaces unless approved on the Shop Drawings.

F. **Doors Frames**: Provide stile and type as detailed on drawings by Western Integrated Materials or approved equal with sound and smoke seals on all four edges.

G. **Hardware Preparation**: Provide concealed hardware reinforcements in doors frames and window hardware conforming to AAMA 904.1, minimum 3/16" thick aluminum, factory applied. Cut, mill, reinforce, drill, and tap aluminum for application of finish hardware from the templates furnished by hardware supplier.

2.02 GLASS MATERIALS: Refer to Glass and Glazing Section 08800 for materials and other requirements

2.03 GLASS SETTING MATERIALS:

A. **Glazing Gaskets**: Extruded neoprene type conforming to NAAMA SG-1-70 and meeting 5 year warranty requirements, colors as approved.

B. **Blocks and Spacers**: Approved plastic or synthetic rubber type, nominal 70 to 90 Durometer except as required by insulating glass manufacturer.

C. **Glazing Sealant**: Tremco Mono One-Part Sealant, or equal, approved colors. For butt glazing, use Dow Corning Corp. "Dow Corning Silicone Rubber Sealant" or General Electric Company SCS 1200 Series Silicone Construction Sealant, clear.

2.04 ALUMINUM FINISH

A. **Interior Aluminum Sheet and Extrusion Surfaces**: Provide a Clear Anodized Factory Finish on surfaces of aluminum components in accordance with AAMA Factory Finish Standards. Refer to schedules on drawings for selections of finishes.

1. Aluminum components shall be finished in accordance with the designations and proprietary identifications set forth in the schedule on the drawings.
2. Designations refer to the finishes defined in The Aluminum Association Designation System for Aluminum Finishes, DAF-45.

2.05 FABRICATION: For window walls will be as follows:

A. **Corner Construction** shall consist of mechanical clip fastening, "Sigma" deep penetration and fillet welds, glazing stops shall be snap-on type with glazing gaskets.

B. **Door Frame System** shall provide for flush trim glazing with no projecting stops, unless indicated for special conditions on Architectural drawings. Vertical and horizontal framing members shall have a nominal face dimension of 1-3/4". Overall depth shall be 4-1/2" with 5/8" glass pocket width. Door frame and window framing members shall be compatible with glass framing in appearance.

2.06 DOORS: Refer to section 08400 for selections.

A. **Aluminum Entrance Doors**: Medium as selected by Architect stile type with 10" bottom stile and water repellent treated mohair weatherstripping in aluminum retainers at all four edges. Aluminum finish to be finished as scheduled.

PART 3 - EXECUTION

3.01 GENERAL INSTALLATION REQUIREMENTS: Conform to approved submittals and the other requirements herein.

A. **Isolation**: Isolate aluminum from all dissimilar metals and materials other than non-magnetic stainless steel. At metals, apply on both contact surfaces a heavy

brush coat of zinc chromate primer made with a synthetic resin vehicle, followed by two heavy brush coats of spar varnish based aluminum metal and masonry paint; or apply a heavy coat of alkali-resistant bituminous paint; or separate surfaces with non-absorptive exterior quality vinyl tape or gasket, or coat the surfaces with two coats of a fluid-applied neoprene membrane material. Coat both contact surfaces with alkali-resistant bituminous paint at concrete, masonry, plaster, tiles, and like cementitious materials. Conceal all isolation in finished Work.

B. **Calking**: Provide calking and sealing as indicated and required to make Work of this Section watertight and properly finished, including joints between frames and adjoining Work. Use sealants of selected or approved colors and conform to Section 07900 including warranty.

3.02 INSTALLATION:

A. **Erection**: Member or miter joints with hairline joints. Securely anchor to the building structure. Set frames level, plumb and in true alignment. Construct completely waterproof assemblies. All work under this section to be performed by an authorized installer. Upon completion, a company representative shall submit a Field Service Report" to the Owner and Architect attesting that the entire installation conforms to the company’s standard of workmanship and materials.

3.03 GLAZING: Employ skilled and experienced glazers. Set all glass true and tight with glazing channels. Perform glazing in accordance with the "Glazing Manual" issued by Flat Glass Jobbers Association and PPG Technical Service Report #104, as applicable. Produce weatherproof and watertight installations. Conform all glass edge bearings, clearances, and lap to Code.

A. **Glass Fastenings**: Set glass in rebates with glazing blocks and spacers so glass does not touch metal, and to preclude loose or rattling glass.

B. **Glazing Channels**: Compress channels at least 5% lengthwise during installation, and at least 15% by stops. Produce air and water tight installations.

3.04 COMPLETION: Wash all soiled surfaces with mild soap solution, rinse with clear water, and wipe dry. Do not use harsh cleaning agents, caustics, or abrasives for cleaning. Leave free of dirt, streaks, and labels.

END OF SECTION

SECTION 08710

FINISH HARDWARE

PART 1 - GENERAL

1.01 SUMMARY: Refer to drawings for Finish Hardware Schedule

A. Section Includes:

1. Door hardware for wood and hollow metal doors.
2. Aluminum entrance doors.

B. Related Sections:

1. Section 06200 - Finish Carpentry: Finish Hardware Installation.
2. Section 07900 - Joint Sealers – exterior thresholds.
3. Section 08110 - Hollow Metal.
4. Section 08210 - Wood Doors
5. Section 08400 - Aluminum Interior Entry Doors

C. Specific Omissions: Hardware for the following is specified or indicated elsewhere.

1. Windows.
2. Cabinets, including open wall shelving and locks.
3. Signs.
4. Toilet accessories, including grab bars.
5. Installation.
6. Rough hardware.
7. Access doors and panels.
8. Corner Guards.
9. Railing, gates and supports.

1.02 REFERENCES:

A. Use date of standard in effect as of Bid date.
B. American National Standards Institute – ANSI 156.18 – Materials and Finishes.
C. ANSI A117.1 – Specifications for making buildings and facilities usable by physically handicapped people.
D. ADA – Americans with Disabilities Act of 1990
E. BHMA – Builders Hardware Manufacturers Association
F. DHI – Door and Hardware Institute
G. NFPA – National Fire Protection Association
1. NFPA 80 – Fire Doors and Windows
2. NFPA 101 – Life Safety Code
3. NFPA 105 – Smoke and Draft Control Door Assemblies

4. NFPA 252 – Fire Tests of Door Assemblies

H. **UL** – Underwriters Laboratories
1. UL10C – Fire Tests of Door Assemblies (Positive Pressure)
2. UL 305 – Panic Hardware

I. **WHI** – Warnock Hersey Incorporated

J. **State of California** Building Code

K. **Local applicable codes**, e.g. municipal security codes, etc.

L. **SDI** – Steel Door Institute

M. **WDI** – Wood Door Institute

N. **WI** – Woodwork Institute

O. **NAAM** – National Association of Architectural Metal Manufacturers

1.03 SUBMITTALS & SUBSTITUTIONS

A. **SUBMITTALS**: Submit six copies of schedule per Division 1. Organize vertically formatted schedule into "Hardware Sets" with index of doors and headings, indicating complete designations of every item required for each door or opening. Include following information:

1. Type, style, function, size, quantity and finish of hardware items. Use BHMA Finish codes per ANSI A156.18.
2. Name, part number and manufacturer of each item.
3. Fastenings and other pertinent information.
4. Location of hardware set coordinated with floor plans and door schedule.
5. Explanation of abbreviations, symbols, and codes contained in schedule.
6. Mounting locations for hardware.
7. Door and frame sizes, materials and degrees of swing.

B. **Bid and submit manufacturer's** updated/improved item if scheduled item is discontinued.

C. **Make substitution requests** in accordance with Division 1. Include product data and indicate benefit to the Project. Furnish operating samples on request.

D. **Furnish as-built/as-installed** schedule with closeout documents, including keying schedule, manufacturers' installation, adjustment and maintenance information, and supplier's final inspection report.

1.04 QUALITY ASSURANCE:

A. **Qualifications**:

1. Hardware supplier: Direct factory contract supplier who employs a Certified Architectural Hardware Consultant (AHC), available at reasonable times during course Work for project hardware consultation to Owner, Architect and Contractor.
   a. Responsible for detailing, scheduling and ordering of finish hardware.

B. **Hardware**: New, free of defects, blemishes and excessive play. Obtain each kind of hardware (latch and locksets, exit devices, hinges and closers) from one manufacturer. Mounting height of latching hardware shall be 30" to 44" A.F.F. per CBC Section 1133B.2.5.1. Pressure to operate door shall not exceed: 5 lbs. (38 N) for exterior doors, 5.0 lbs (38 N) for interior doors and when fire doors are required 5 lbs. (38 N) maximum or the maximum effect to operate the door may be increased to the minimum allowable by the appropriate administrative authority, not to exceed 15 lbs. (66.72 N) per 1133B.2.5. All hardware shall meet the requirements of CBC Section(s) 1133.B.2.1, 1133B.2.5.1 AND 1003.3.1.8.

C. **Exit Doors**: Operable from inside with single motion without the use of a key or special knowledge or effort.

D. **Fire-Rated Openings**: In compliance with NFPA 80. Hardware UL10C/UBC-7-2 (positive pressure) compliant for given type/size opening and degree of label. Provide proper latching hardware, non-flaming door closers, approved-bearing hinges, plus resilient and required intumescent seals. Furnish openings complete.

E. **Pre-Installation Meetings**: Initiate and conduct with supplier, installer and related trades, coordinate materials and techniques, and sequence complex hardware items and systems installation. Convene at least one week prior to commencement of related work.

1.05 DELIVERY, STORAGE AND HANDLING:

A. **Delivery**: Coordinate delivery to appropriate locations (shop or field).

B. **Acceptance at Site**: Items individually packaged in manufacturers' original containers, complete with proper fasteners and related pieces. Clearly mark packages to indicate contents, locations in hardware schedule and door numbers.

C. **Storage**: Provide locked storage area for hardware, protect from moisture, sunlight, paint, chemicals, etc…

1.06 PROJECT CONDITIONS:

A. **Where exact types** of hardware specified are not adaptable to finished shape or size of members requiring hardware, provide suitable types having as nearly as practical as the same operation and quality as type specified, subject to Architect's approval.

1.07 SEQUENCING AND COORDINATION:

A. **Coordinate** with concrete.

B. **Reinforce** walls.

C. **Coordinate finish** floor materials and floor-mounted hardware.

D. **Conduit and raceways** as needed for electrical, electronic and electro-pneumatic hardware items. Fire/life-safety system interfacing. Point-to-point wiring diagrams plus riser diagrams to related trades.

E. **Furnish manufacturer** templates to door and frame fabricators.

F. **Use hardware consultant** to check Shop Drawings for doors and entrances to confirm that adequate provisions will be made for proper hardware installation.

1. Confirm that door manufacturers furnish necessary UBC-7-2 compliant seal packages.

1.08 WARRANTY:

A. **Part of respective manufacturers' regular terms of sale. Provide manufacturers' warranties**:

1.	Closers:	Ten years mechanical, two years electrical.
2.	Exit Devices:	Three years.
3.	Hinges:	Life of Building.
4.	Other Hardware:	Two years.

1.09 COMMISSIONING:

A. **Test door hardware** operation with climate control system and stairwell pressurization system both at rest and while in full operation.

PART 2 - PRODUCTS

2.01 MANUFACTURERS: Corbin-Russwin Lock Bodies and Falcon Locksets/Latchsets are the City Standard – No Substitutions

A. **Listed of Manufacturers**: Refer to Schedule on Drawings.

B. **Provide hardware items** required to complete the work in accordance with these specifications and manufacturers' instructions.

1. Include items inadvertently omitted from this specification. Note these items in submittal for review.
2. Where scheduled item is now obsolete, bid and furnish manufacturers updated item at no additional cost to the project.

2.02 HANGING MEANS:

A. Conventional Hinges: Hinge open widths minimum, but, of sufficient throw to permit maximum door swing. Steel or stainless steel pins and concealed bearings.

1. Three hinges per leaf to 7 foot height. Add one for each additional 30 inches in height, or any fraction thereof.
2. Extra heavy weight hinges on doors over 3 foot, 5 inches in width.
3. Outswinging exterior doors: non-ferrous with non-removable (NRP) pins.
4. Non-ferrous material exteriors and at doors subject to corrosive atmospheric conditions.
5. Provide shims and shimming instructions for proper door adjustment.

B. Continuous Hinges:

1. Geared-type aluminum at exteriors: Include a non-removable cap to guard against foreign material, e.g. sticks, sand, epoxy etc.

    a. Heavy-duty, double-bearing units for doors over 3 foot, 5 inches in width.
    b. Heavy-duty, double-bearing units for doors with panic hardware or fire exit devices.

2.03 LOCKSETS, LATCHSETS, DEADBOLTS:

A. Mortise Locksets and Latchsets: As scheduled.

1. Chassis: Cold-rolled steel, handing field-changeable without disassembly.
2. Latchbolts: ¾ inch throw stainless steel anti-friction type.
3. Lever Trim: Through-bolted, accessible design, cast lever or solid extruded bar type levers as scheduled. Filled hollow tube design unacceptable.
    a. Spindles: Security design independent break-away. Breakage of outside lever does not allow access to inside lever's hubworks to gain wrongful entry.
4. Thumbturns: Accessible design not requiring pinching or twisting motions to operate.
5. Deadbolts: Stainless steel 1-inch throw.
6. Electric operation: Manufacturer-installed continuous duty solenoid.
7. Strikes: 16 gage curved steel, bronze or brass with 1 inch deep box construction, lips of sufficient length to clear trim and protect clothing.
8. Scheduled Lock Series and Design: As scheduled on Drawings
9. Certifications:
    a. ANSI A156.13, 1994, Grade 1 Operational, Grade 1 Security.
    b. ANSI/ASTM F476-84 Grade 31 UL Listed.

2.04 CLOSERS

A. **General**: One manufacturer for closer units throughout the Work. Door closer when provided then the sweep period of the closer shall be adjusted to so that from an open position of 70 degrees, the door will take at least 3 seconds to move to a point 3" from the latch, measured to the landing side of the door per CBC Section 1133B.2.5.1.

B. **Surface Closers**:

1. Full rack-and-pinion type cylinder with removable non-ferrous cover and cast iron body. Double heat-treated pinion shaft, single piece forged piston, chrome-silicon steel spring.
2. ISO 2000 certified. Units stamped with date-of-manufacture code.
3. Independent lab-tested 10,000,000 cycles.
4. Thru-bolts at wood doors unless doors are provided with closer blocking. Non-sized, non-handed, and adjustable. Place closer inside building, stairs, and rooms.
5. Plates, brackets and special templating when needed for interface with particular header, door and wall conditions and neighboring hardware.
6. Opening pressure: Exterior doors 5 lb., interior doors 5 lb., labeled fire doors shall not exceed 15 lb.
7. Separate adjusting valves for closing speed, latching speed and backcheck, fourth valve for delayed action where scheduled.
8. Extra-duty arms (EDA) at exterior doors scheduled with parallel arm units.
9. Exterior door closers: tested to 100 hours of ASTM B117 salt spray test, furnish data on request.
10. Exterior doors do not require seasonal adjustments in temperatures from 120 degrees F to –30 degrees F, furnish data on request.
11. Non-flaming fluid will not fuel door or floor covering fires.
12. Pressure Relief Valves (PRV): unsafe, not permitted.

2.05 OTHER HARDWARE

A. **Kick Plates**: Four straight edges, .050 inches minimum thickness, height and width as scheduled. Sheet-metal screws of bronze or stainless steel to match other hardware.

B. **Door Stops**: Provide stops to protect walls, casework or other hardware.

1. Unless otherwise noted in Hardware Sets, provide floor type with appropriate fasteners. Where floor type cannot be used, provide wall type. If neither can be used, provide overhead type.

C. **Seals**: Finished to match adjacent frame color. UL label applied to seals on rated doors. Substitute products: certify that the products equal or exceed specified material's thickness and durability. Proposed substitutions: submit for approval.

1. Non-corroding fasteners at in-swinging exterior doors.
2. Sound control openings: Use components tested as a system using nationally accepted standards by independent laboratories. Ensure that the door leafs have the necessary sealed-in-place STC ratings. Adhesive mounted components not acceptable. Fasten applies seals over bead of sealant.
3. Fire-rated Doors, Resilient Seals: UL10C/UBC-7-2 compliant. Coordinate with selected door manufacturers and selected frame manufacturer's requirements. Where rigid housed resilient seals are scheduled in this section and the selected door manufacturer only requires an adhesive mounted resilient seal, furnish rigid housed seal at minimum, or both the rigid housed seal and the adhesive applied seal if necessary to fulfill door manufacturer's requirement. Adhesive applied seal alone is deemed insufficient for this project where rigid housed seals are scheduled.
4. Fire-rated Doors, Intumescent Seals: Furnish fire-labeled opening assembly complete and in full compliance with UL10C/UBC-7-2. Furnished by selected door manufacturer, these seals vary in requirement by door type and door manufacture. Adhesive applied intumescent strips are not acceptable. Careful coordination required.

D. **Fasteners**: Generally, exposed screws to be Phillips or Robertson drive. Pinned TORX drive at high security areas. Flat head sleeve anchors (FHSL) may be slotted drive. Sheet metal and wood screws: full-thread. Sleeve nuts: full length to prevent door compression.

E. **Silencers**: Interior hollow metal frames, 3 for single doors, 4 for pairs of doors. Omit where adhesive mounted seal occurs. Leave no unfilled/uncovered pre-punched silencer holes.

2.06 FINISH: Refer to drawings for schedule.

A. **Generally BHMA 626 Satin Chromium**.

B. **Door closers**: factory powder coated to match other hardware, unless otherwise noted.

C. **Aluminum items**: match predominant adjacent material. Seals to coordinate with frame color.

2.07 KEYING REQUIREMENTS:

A. **Key Systems**: Corbin-Russwin Lock Bodies is the City/Library Department Standard – No Substitutions

1. Provide temporary I.C. core cylinders keyed to Construction Master.

B. **Interchangeable Cores**: Utility patented, 6-pin solid brass construction.

PART 3 - EXECUTION

3.01 PREPARATION:

A. **Ensure that walls** and frames are square and plumb before hardware installation.

B. **Locate hardware per SDI-100** and applicable building, fire, life-safety, accessibility, and security codes.

1. Notify Architect of any code conflicts before ordering material.
2. Where new hardware is to be installed near existing doors/hardware scheduled to remain, match locations of existing hardware.

3.02 INSTALLATION

A. **Install hardware per manufacturer's** instructions and recommendations. Do not install surface-mounted items until finishes have been completed on substrate. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate for proper installation and operation.

1. Gaskets: Install jamb-applied gaskets before closers, overhead stops, rim strikes, etc. Install sweeps across bottoms of doors before astragals, cope sweeps around bottom pivots, trim astragals to tops of sweeps.

B. **Locate floor stops** not more than 4 inches from the wall.

C. **Drill pilot holes** for fasteners in wood doors and/or frames.

D. **Lubricate and adjust** hardware scheduled to remain. Carefully remove and give to Owner items not scheduled for reuse.

3.03 ADJUSTING

A. **Adjust and check for** proper operation and function. Replace units, which cannot be adjusted to operate freely and smoothly.

1. Hardware damaged by improper installation or adjustment methods to be repaired or replaced to Owner's satisfaction.

B. **Inspection**: Use hardware supplier. Include suppliers with closeout documents.

C. **Follow-up inspection**: Installer to provide letter of agreement to Owner that approximately 6 months after substantial completion, installer will visit Project with representatives of the manufacturers of the locking devices and door closers to accomplish following:

1. Re-adjust hardware.
2. Evaluate maintenance procedures and recommend changes or additions, and instruct Owner's personnel.
3. Identify items that have deteriorated or failed.
4. Submit written report identifying problems and likely future problems.

3.04 DEMONSTRATION:

A. **Demonstrate electrical**, hardware systems, including adjustment and maintenance procedures.

3.05 PROTECTION/CLEANING:

A. **Cover installed hardware,** protect from paint, cleaning agents, weathering, carts/barrows, etc. Remove covering materials and clean hardware just prior to substantial completion.

B. **Clean adjacent wall**, frame and door surfaces soiled from installation/reinstallation process.

3.06 SCHEDULE OF FINISH HARDWARE

A. **See door schedule** in drawings for hardware set assignments.

END OF SECTION

SECTION 08800

GLASS AND GLAZING

PART 1 - GENERAL

1.01 DESCRIPTION: Division 1 applies to this Section. Provide glass and glazing complete as indicated, specified, and required.

A. Work In This Section: Principal items include:

1. Window and door glass.
2 Mirrors.

1.02 QUALITY ASSURANCE:

A. Quality Standards: In addition to Code, glass installations shall comply with ANSI Z97.1, as applicable, and Federal Safety Standard 16 CFR 1201.

1.03 SUBMITTALS: Refer to Section 01300 for procedures.

A. Samples and Product Data: Obtain color instructions from the Architect prior to submission. Submit the following:

1. Samples of various glasses to extent requested by Architect, 12" square with smooth edges.
2. Glazing channels with manufacturer's data covering materials and warranty.

B. Certificates: Submit from manufacturer stating the quality, thickness, and type of all unlabeled glass and glazing delivered to the site for field cutting.

C. Purchase Orders: Within 30 working days after execution of the Contract, submit evidence that firm purchase orders for all glass and glazing required for the Work have been placed with the glass suppliers.

1.04 JOB CONDITIONS: Protect glass and glazing until completion and final acceptance. Repair or replace damaged or defective glazing to the original specified condition, at no extra cost to Owner. Damaged or defective glazing includes glass that cannot be properly cleaned.

1.05 WARRANTY: Refer to Section 01740. Furnish a written warranty covering glass and glazing channels for 5 years against all defective material or deterioration including, without limitation, shrinkage causing loss of seal and exposure to sun, ozone, elements, smog and other air pollution, and commercial glass cleaners. Furnish a written warranty covering unframed mirrors against silver spoilage for 15 years.

PART 2 - PRODUCTS

2.01 GLASS MATERIALS: Refer to schedule on Drawings for types of glass and material selections from Domestic brand glass conforming to ASTM C1036 and ASTM C1048 for tempered, by PPG Industries, Inc., Glass Group, Libbey-Owens-Ford, Monsanto, St. Gobain, Spectrum, Viracon or equal. Factory cut glass lights shall be labeled and labels shall not be removed until directed. Job-cut glass, delivered unlabeled as "stock to cut", shall be accompanied by manufacturer's affidavit stating quality, thickness, type and manufacture; no such glass shall be cut until Architect's approval of material is obtained.

A. **Plate Glass**: Clear as scheduled, glazing quality float, 1/4" thick unless otherwise shown or specified.

B. **Tempered Glass**: Furnish factory fully tempered glass. Handle and size glass in accordance with manufacturer's instructions. Furnish glass free of visible tong marks when installed. On each sheet, include an inconspicuous but visible label fused to the glass and placed in a lower corner, identifying the tempered glass. Provide fireman's tempered glass label if required by the local Fire Department. Furnish plate glass as indicated on Drawings.

C. **Insulating Glass Units**: Drawings and Specifications are based upon the use of insulating glass units conforming to the requirements herein, which establish intended types; refer to Section 01600 for substitutions.

1. All insulated glazing shall be glazed at the factory. All glazing shall be (Low E) glazing constructed to an overall minimum thickness of 7/8" with two lites of DSB tempered glass (1/8") as size and loading requires. All insulated glass units shall be tested, certified and carry the required label reflecting level of testing passed an U Value of 0.28 along with all other requirement.

D. **Spandrel Glass**: PPG unless otherwise indicated on drawings, heat strengthened, free of discernible distortion, or equal, color to match glass with factory applied polyester opacifying film.

E. **Wire Glass**: Provide glass manufactured by Asahi Glass Company LTD, distributed by ACI Glass Products (213) 692-0395 polished "Misco" or "Baroque Style" 1/4", unless otherwise indicated, thick wire glass, pattern as selected by Architect, or Approved equal.

F. **Mirrors**: Clear or smoke where indicated, mirror quality float glass, Type I, Class 1, Quality q1 silvering and 1/4" thick unless otherwise indicated, edges ground and polished, double silvered, with electro-deposited copper backing and protective back paint coat equal to Palmer Products "Mirro-Bac Paint". Provide stainless steel frames on all edges unless otherwise shown or directed.

G. **Glass Adhesive**: Standard product adhesive expressly manufactured for glass installation, equal to Palmer Products "Mirro-Mastic" with Mirro-Mastic Bond".

2.02 GLASS SETTING MATERIALS:

A. **Glazing Channels**: Extruded neoprene or fibrous glass reinforced core vinyl type conforming to NAAMA SG-1-70, color as approved, with serrated channel legs for a tight seal to glass, meeting 5 year warranty requirements.

B. **Blocks and Spacers**: Approved vinyl plastic or neoprene rubber type, nominal 50 to 90 Durometer except as recommended by glass manufacturer.

C. **Glazing Sealant**: Tremco Mono One-Part Sealant, or equal, approved colors.

PART 3 - EXECUTION

3.01 GLAZING: Employ skilled and experienced glazers. Set glass air-tight and true with glazing channels. Perform glazing according to the "Glazing Manual" of the Flat Glass Jobbers Association and with PPG Technical Service Report #104 except as required herein. Install glass in metal frames according to manufacturer's instructions to obtain weatherproof and waterproof installations. Conform glass edge bearings, clearance, and edge laps to Code. Use glazing channels specified herein unless channels are furnished by manufacturers under other Sections.

A. **Glass Fastenings**: Set glass in rabbets with glazing blocks and spacers so glass does not contact frame. Set glass to preclude looseness and rattling.

B. **Glazing Channels**: Compress channels at least 5% lengthwise during installation, and at least 15% by stops. Produce air and water tight installations.

3.02 MIRRORS: Clean backing of paint and other deleterious materials, then prime with bond coat. Embed all mirrors in a continuous contact of glass adhesive. Provide top and bottom edge channels and corner guards of stainless steel or aluminum where indicated or directed.

3.03 COMPLETION: Do not use harsh cleaning agents, caustics, acids, or abrasives for cleaning. Wash and polish glass both sides and leave free of dirt, streaks, and labels.

END OF SECTION

SECTION 08900

WINDOW WALL, STOREFRONT AND ENTRANCES

PART 1 - GENERAL

1.01 DESCRIPTION: Division 1 applies to this Section. Provide window walls, windows, storefronts and entrances as indicated, specified, and required. This is a performance specification and is issued in conjunction with the contract drawings which indicate the general arrangement of the work, dimensions, structural system and the major architectural elements of construction. As performance documents, the drawings and specification do not necessarily indicate or describe all items required for the full performance and completion of the work. The work under this Section includes labor, materials, equipment and services all as required for the complete fabrication, assembly, delivery, anchorage, erection and weatherproofing of the window wall and its related items as detailed on the Architect's drawings, as herein specified and as required by job conditions.

A. **Work In This Section**: Principal items include, but are not necessarily limited to:

1. Design of the components connections and system.
2. Submittals, Building Department approvals and permits.
3. Aluminum window walls, entrances and aluminum storefront.
4. Glass and glazing.
5. Aluminum infill panels.
6. Stile and glass entrance doors.
7. Finish on all window wall components.
8. Closures and sleeves.
9. Flashing as related to the window wall.
10. Calking and sealing of the window wall.
11. Installation of entrance door hardware furnished under Section 08710.
12. Drywall adapters and blind pockets.

B. **Related Work Not Included In This Section**:

1. Furnishing finish hardware for all entrance doors specified in Section 08710.
2. Drywall and/or plaster support framing at exterior wall specified in Section(s) 06100 and 09100.
3. Gypsum wallboard specified in Section 09250.

1.02 CONTRACTOR'S RESPONSIBILITIES:

A. **Prior** to submission of a bid, examine and study the drawings and specifications with regard to adjacent surfaces and structural framing to which the Work of this Section is attached and anchored and submit written notification to the Architect

noting deficiencies or discrepancies that would affect the proper or timely installation of any Work in this Section.

B. **Coordinate** the following items with General Contractor and applicable Sub-contractors of related Work.

1. Coordinate and verify, by measurement at the job site, dimensions affecting his Work. Submit written notification to the General Contractor documenting field dimensions and conditions which are at variance with those on the approved Shop Drawings, Contract Documents, or are detrimental to the proper and timely installation of job site materials. Decisions regarding corrective measures shall be obtained from the General Contractor and reviewed by the Architect prior to the fabrication of the items affected. Contractor shall insure the compatibility of adjacent items and materials that relate to his Work.

1.03 DESIGN RESPONSIBILITY: This is a performance specification and all criteria for the solution of a watertight and structurally sound window wall, windows, storefront and entrance system(s) as detailed on the drawings are both center and offset system(s) and herein specified is for the sole purpose of defining the design intent and performance requirements. The details shown are intended to emphasize the preferred profiles and performance requirements for this project. The Contractor is hereby advised that the responsibility for the window wall is totally his and that all designs and resolutions proposed in the Contractor's Shop Drawings, structural calculations and related documentation and certification must be demonstrated not only in laboratory Mock-up tests, and the special guarantee periods as herein specified, but field water leakage test procedures, as approved by the Architect.

A. **Adjustments**: Thickness of metal, dimension and profile adjustments shall be made in the proposed system to facilitate fabrication or erection methods or techniques, the weatherability factor, or the design and performance requirements. The design is limited only to the dimensional space allowed for the window wall/curtain wall and entrances as indicated by the capacity of the system to meet or exceed the design and performance requirements specified herein.

B. **Proposal Submission**: Design proposal submissions which follow exactly the detail indicated on the drawings will not relieve the Contractor of responsibility for the design, fabrication, erection, or performance of work included in this Section.

C. **Right To Reject**: The Architect will have the right to reject components and assemblies during assembly and erection if the workmanship and intent are not in strict accord with the approved Shop Drawings, structural calculations, documentation, certifications, Samples, mock-up test, and as herein specified.

D. **Changes**: Document changes to the Architect's Drawings and Specifications in writing for architectural review. Design proposal must equal or better the design,

function and material standards as described on the Architect's Drawings and herein specified. In the event of a controversy over the design, the decision of the Architect will take precedence.

E. **Supplementary Parts**: Provide and install all supplementary parts necessary to complete the work as described on the Drawings and herein specified, though not definitely shown or specified. Unless otherwise noted or specified to be furnished or installed by another Subcontractor, this work shall include type and thickness and temper of all glass, the design and sizing of all wall sections and anchor assemblies to meet the performance, and design requirements, and the furnishing of inserts to be installed by others, fasteners, clips, bracing, and steel framework as required, even if not shown, for the proper anchorage of the window wall/curtain wall, entrances and cladding elements to the structure.

F. **Review of Submittals**: Architect's review of all submittals as designed in this Section will be issued only with the understanding and assurance that the Window Wall Contractor is fully responsible for the performance of all work included within the scope of this Section. The Contractor's submittals and proposals will be understood and assumed to be the most appropriate and best suited for their intended use and, in fact, as recommended for the specific use or uses, including assurance that the Owner can receive the optimum life expectancy for all materials.

G. **Systems**: Window wall, windows, storefront areas and entrances are Systems as detailed on the Drawings are to be designed to accommodate the performance requirements herein specified, including, but not limited to, the accommodation of shear stresses and movement in sealant joints and the opening of joinery during dynamic movements. All metal joinery within, adjacent to and common to the window wall, curtain wall and entrance systems must maintain structural, weathering and watertight integrity as defined in the performance criteria.

1.04 PERFORMANCE REQUIREMENTS: All components, assemblies and completed work included in and pertinent to the work of this Section shall conform to the following minimum performance standards and comply with applicable sections of the 2007 LACBC and California Building Code (CBC) 2007 California Title 24, Division 4, Section 4.1.6. Air leakage requirements of Division 4. Except when applicable codes make other provisions, or as otherwise noted herein, all loads shall act in combinations that provide the most unfavorable conditions. Wind loading need not be considered as additive to seismic loading. The performance requirements shall include, but not necessarily be limited to, the following items:

A. **Thermal Movement**: Provide and/or make allowances for free and noiseless vertical and horizontal thermal movement due to the contraction and expansion of component parts, for an external surface metal temperature range of from plus 20 degrees F. to plus 180 degrees F. Buckling, opening of joints, glass breakage, undue stress on fasteners, failure of sealants or any other detrimental effects due to thermal movement of component parts will not be permitted. Fabrication,

assembly and erection procedure can take into account the ambient temperature range at the time of the respective operation.

B. **Air Infiltration**: Air infiltration shall be tested in accordance with ASTM E283. Infiltration shall not exceed .06 cfm per square foot (.0003 $M^3/5M^2$) of fixed area at 6.24 psf. Water infiltration shall be tested in accordance with ASTM E331 and in accordance with AAMA standard TM-1-76.

C. **Water Penetration and Moisture Control**: Water infiltration shall be tested in accordance with ASTM E331. No water penetration at a test pressure of 8 psf. The systems shall preform to these criteria under a combined load and acting perpendicular to the glass plane as referred to in this Section. It is the responsibility of the Contractor to design, furnish and install a totally watertight window wall, windows, storefront, entrances and cladding assemblies.

D. **Water Penetration** in this Section is defined as the appearance of water, other than condensation, on the roomside of any part of the assembly offering protection from the exterior elements to the interior building space which cannot be drained to the exterior. Other definitions are superceded by this definition.

E. **Provision** shall be made to drain to the exterior of the wall any water entering at joints or glazing reveals and any condensation occurring within unit. Weep slots shall be baffled or staggered.

F. **Wind Loads**: Conform to 2007 LACBC and CBC 2007

G. **Seismic Forces**: Conform to 2007 LACBC and CBC 2007

1.05 BUILDING DYNAMICS:

A. **Building Dynamics** are defined as any building movement or deflection caused by the singular or combined effects of wind, or seismic, thermal, live, impact and/or concentrated loads, including the kinetic deflections resulting from the dead load of materials, and live load of personnel and equipment. The design, fabrication, assembly and installation of the window wall, windows, entrances and cladding assemblies herein specified shall accommodate all inherent building dynamics, including the fabrication, assembly and installation tolerances of related work not included in this Section, without the loss of, or any detrimental effect to, the performance requirements herein specified. The Contractor shall verify and accommodate such movements, deflections and tolerances.

B. **Window Wall Components and Systems** shall accommodate a live load floor deflection of not less than plus or minus 3/8 inch. This is in addition to any erection, fabrication and thermal expansion deflections which shall be accommodated. Live load deflection shall be assumed to occur on individual floors but not on all floors simultaneously.

C. **Structural Design Loads**: The allowable stresses for aluminum window wall/curtain wall elements shall conform to the minimum standards as published in the Aluminum Association's "Aluminum Construction Manual - Specification for Aluminum Structures", Current Edition", and other applicable codes or regulations. The minimum design loads herein specified shall comply with the 2007 LACBC and California Building Code (CBC) 2007 Edition, and other applicable building codes and regulations.

D. **Anchorage and Structural Support Framing**: Unless otherwise noted on the Drawings, all anchor assemblies and components, and support framing, including related connections and/or fasteners for window wall/entrance assemblies shall be designed, furnished and/or installed as required for full compliance with the specified performance criteria. All such items indicated and/or noted on the Drawings are schematic and do not necessarily indicate the exact and/or required scope, type, shape, or profile. Embedded anchors shown at slab edges are required as indicated schematically. Structural design does not allow drilling or "shooting" of any anchors near slab edges. Additional anchorage and structural support framing shall be added, or complemented as required. Anchorage and structural supports shall not spall or weaken the integrity of the structural support system. All structural steel to be primed. Repair prime coating after weldments.

E. **Point of Support** for the assemblies shall be properly braced in the three orthogonal directions (vertical, transverse and longitudinal) to resist loads from all directions, including but not necessarily limited to, the positive and negative wind pressures, and seismic forces.

F. **Anchorage and Support Framing** shall be designed to accommodate wind load, thermal, seismic and building movements without any harmful effect to the assemblies as herein specified, including glass and glazing and sealant applications. All anchorage clips, bolts, etc. to be designed for code stresses and no less than maximum wind loads x 1.5.

G. **Coordination with Concrete Trade**: Furnish Contractor with a dimensioned placement drawing showing location of embedded anchors. Verify correct placement of anchors before and after concrete is placed.

H. **Glass Performance**: The maximum overall size, minimum thickness and type of glass shall conform to the applicable glass manufacturer's recommendation for the openings or sizes indicated on the Drawings and the performance requirements as herein specified. Glass shall also conform to governing codes and regulations. Glass shall be designed to perform to a specified safety factor of 2.5 and sustain at maximum wind loading at a statistical glass breakage of no more than 8 lights per 1000 lights. Provide heat strengthening or tempering where conditions of thermal breakage may occur. Glass manufacture shall provide certification of glass use, including the review of thermal stresses due to shading, etc.

I. **Reference Standards**: Published specifications, standards, tests or recommended methods of trade, industry or governmental organizations apply to work of this Section where cited by abbreviations noted below or in Division 1.

AA	Aluminum Association
AAMA	Architectural Aluminum Manufacturer's Association
AIA	American Institute of Architects
AISI	American Iron and Steel Institute
CSI	Construction Specifications
FGJI	Flat Glass Jobbers Institute
GMA	Glass Manufacturers' Association
ICBO	International Conference of Building Officials
NAAMM	National Association of Architectural Metal Manufacturers
OSHA	Occupational Safety and Health Association
RMA	Rubber Manufacturers' Association
SSPC	Structural Steel Painting Council
LACBC	Los Angeles County Building Code
CBC	California Building Code

1.06 SUBMITTALS: Refer to Section 01300 for procedures.

A. **Preliminary Design Proposals and Calculation**: Within forty five (45) calendar days of the date of receipt of letter of intent of this Contract, the Contractor shall submit to Architect for his review, structural calculations stamped by a California Structural Engineer and a detailed design proposal of the typical window wall areas for review of the basic wall concept. The detail design proposal shall include drawings of the framing members, glass and other components. The Wall Contractor shall not proceed with Shop Drawings until the detail design proposal are reviewed and deemed in accordance with the Contract Documents. Upon receipt of the Architect's review and comments on the detail design proposal, the Contractor shall make any required adjustments to the design and proceed to prepare Shop Drawings for submittal.

B. **Shop Drawings**: Shop Drawings for window wall and entrances shall be submitted to the Architect for his review in accordance with General Conditions of the Contract and Division 1 of these specifications. Architect's review shall be for conformance to the design concept and for general arrangement only, and such review shall not relieve the Contractor of any of the responsibilities as stated herein or any other applicable items herein specified. Shop Drawings shall not be prepared or submitted until design proposal has been reviewed by the Architect. No Work shall be fabricated until Shop Drawings, structural calculations, stamped by a California Structural Engineer and all other related submittals, documentation, and samples have been reviewed by the Architect. No Work shall be installed until all required certifications have been review by the Architect.

C. **Incorporation**: Shop Drawings shall incorporate plans, elevations, sections referenced to Architect detail numbers, and full size details for all work of this Section. The full size details shall show and specify all metal and glass thicknesses, types and finishes; areas to be sealed and sealant materials; gaskets; direction and magnitude of thermal expansion; direction and magnitude of all applicable building and seismic movements; type and size of construction including joinery, fasteners and welds. Internal joinery shall be shown in isometric drawings for clarity. All anchorage assemblies and components; the fabrication and erection tolerances for the work of this Section and the adjoining related work and the layout of all inserts and reglets shall be shown. The Shop Drawings shall also indicate full size details of adjoining work even though not included in the work of this Section, to insure proper installation and coordination of the work and the work of other Contractors.

D. **Schedules**: In Addition to the above requirements and in order to coordinate the glass and sealant certification also required to be submitted, provide the following schedules with Shop Drawings submission.

E. **Materials Certification**: Certification that the following materials and/or processes meet or exceed the specified performance requirements shall also be submitted by the Contractor with the Shop Drawings.

1. Aluminum alloys and finishes.
2. Steel alloys and finishes.
3. Sealants.
4. Neoprene gaskets, nylon, etc.
5. Fasteners and weldments.
6. Glass.
7. Compatibility of materials, finishes, methods of application.
8. Organic Paint finishes.

F. **Prints**: Three copies of the Shop Drawings shall be submitted to the Architect for review. Architect will review the Shop Drawings to insure their conformance to the Contract Documents. Architectural review of Shop Drawings shall not relieve the Contractor from any of the responsibilities and requirements as herein specified. No work shall be fabricated until the Shop Drawings, structural calculations, documentation, certifications, Samples and mockup tests have been reviewed by the Architect.

G. **Structural Calculations**: Four copies each of the structural calculations shall be submitted to the Architect for his review. Architect shall review the structural calculations to insure their conformance to the Contract Documents. Architectural approval of structural calculations will not relieve the Contractor from any of the responsibilities and requirements as herein specified. Structural calculations shall be prepared and certified by a civil or structural engineer registered in the State of California. Structural Calculations shall include, but not

be limited to, computations for the justification of all window wall, curtain wall, entrance, framing elements and/or sections, connection, including fasteners and welds, anchorage assemblies, etc., in static and dynamic modes. Structural Calculations shall be cross-referenced to the applicable Shop Drawing details and the engineer responsible for the calculations shall sign the Shop Drawings after his review. Provide a complete structural analysis of seismic movement showing the resultant effect and/or forces on all applicable structural components including, but not limited to, anchor, welds, fasteners, etc. Anchor clips with slotted holes shall be calculated in the most extended condition. Structural calculations shall dimensionally limit the stacking of shims in regards to bending on bolts, clips, etc.

H. **Requirements of Regulatory Agency**: Contractor shall submit the Shop Drawings and structural design calculations to the governing Building Department for plan check and building permit. Any additional charges or permit fees will be paid for by the Owner. Modification required by Building Department shall be reviewed with the Architect for architectural conformance with aesthetic design shown on the Drawings before the documents are revised and the permit secured.

I. **Glass and Glazing Documentation**: The Wall Contractor shall submit a detailed diagram to the product manufacturer indicating how their product will be used in the various window wall systems. Along with the Diagram, include written information describing application and/or installation techniques, wind load, wall and building movement, magnitude of thermal expansion, blocking, sealing, surface preparation and any other procedures, operations, or exposures which may affect the performance of the manufacturer's wall product. The Product Manufacturer shall review and approve the Wall Contractor's submission for responsible use of their material relative to the specific application based on the information supplied by the Wall Contractor, noting on the submission all procedures or conditions they believe will not allow their product to perform, including thermal stresses and gradient caused by shading, or any other source. The Returned Review and approval by the product manufacturer of the wall manufacturer's submitted diagram will be acceptable documentation to satisfy this requirement. The Review of the Wall Contractor's submission by the product manufacturer does not in any way relieve the Wall Contractor of responsibility for the performance of this wall system, nor is he to assume that the product manufacturer's review is a guarantee of performance. The product manufacturer would be responsible only for the quality of the product and the degree that he presents the properties of this product as adequate to perform.

J. **Record Shop Drawings**: At the completion of the job submit one set of record Shop Drawing sepias depicting the window wall, windows and storefront, system as installed. Clearly indicate all deviations and changes to the final approved Shop Drawings, including any changes in anchors or attachments due to variations with construction tolerances.

PART 2 - PRODUCTS

2.01 MATERIALS: U.S. Aluminum or Arcadia Series system, Alloys, tempers, thicknesses and/or gauges shall be as required for performance and finish. System as shown on the drawings is for window wall and storefront entrance system. The glass assembly systems are glass system as specified in Section 08800 or indicated on Drawings.

A. Steel:

1. Hot rolled shapes and plates ASTM A36.
2. Tubing: ASTM A500 or A501.
3. Non-tubular cold-formed carbon steel with thickness 0.168 in. or less: ASTM A446.

B. Aluminum:

1. Extrusions: Alloy and temper for aluminum extrusions shall be 6063-T5 or T6. Provide thickness as required for structural integrity of the system. Standard commercial tolerances as listed in Aluminum Standards and Data shall apply to finished, fabricated and assembled materials. Stricter tolerances shall apply where required to assure proper functioning of glass and glazing materials.
2. Sheet: Alloy for aluminum sheet which is exposed shall be 5005. Sheet which is not exposed may be 3003 alloy. All sections shall be formed true to detail and free from defects impairing appearance, strength or durability. Minimum thickness 0.125". Standard commercial tolerances as listed in Aluminum Standards and Data shall apply to finished, fabricated and assembled materials.
3. Miscellaneous Materials:
   a. Fasteners: Type, size, alloy quantity and spacing of all fasteners and anchorage devices shall be as required for performance. Where exposed, fasteners shall be aluminum or 300 series nonmagnetic stainless steel. Where not exposed, fasteners may be zinc-plated steel in accordance with ASTM A165-55 and A164-55. Provide lock washers on bolts into concrete inserts. Provide lock nuts at all other bolted connections.
      1). Fastening Devices between aluminum and aluminum shall be AISC Type 305 (18-8) stainless steel.
   b. Hot-rolled Shapes: Hot-rolled shapes and plate shall satisfy requirements of ASTM A36. Cold-formed steel shall conform to one of the material specifications listed in the Specification for the Design of Cold-Formed Steel Structural Members.
   c. Inserts for Anchorage in Concrete: Furnish type and size as called for on architectural drawings. Reinforcing rod attachments to be as required by structural calculations. Welding and painting shall be as required under steel-deck concrete embeddement specifications.
   d. Shims, Spacers and Washers: Provide slip pads and separators of nylon, high-impact polystyrene or approved equal, between

moving parts at all expansion connections. Steel washers shall be zinc-plated. U-shaped shims or washers shall not be permitted at dynamic connections or where they could become loose. Do not use plastic shims at structural connections. A maximum of 1/4" thickness and a maximum of two shims will be permitted at bolted connections.

2.03 ALUMINUM FINISH

A. **Aluminum Sheet and Extrusion Surfaces**: Provide a Clear Anodized Factory Finish on surfaces of aluminum components in accordance with AAMA Factory Finish Standards. Refer to schedules on drawings for selections of finishes.

1. Aluminum components shall be finished in accordance with the designations and proprietary identifications set forth in the schedule on the drawings.
2. Designations refer to the finishes defined in The Aluminum Association Designation System for Aluminum Finishes, DAF-45.

B. **Steel**: Galvanized or zinc prime coatings or as noted on the Drawings. Repair coating after welding.

C. **Finishing Operations**: All components shall be fully formed and fabricated prior to finishing. All exposed surfaces shall receive the specified finish with no mill finish aluminum exposed. Sealants may not be applied to mill finish aluminum unless accepted and warranted by sealant manufacturer. Do not commence finishing operations until all forming and fabrication operations have been completed.

D. **Protecting**: Extreme care shall be exercised to protect finishes during manufacture and installation. Damaged elements will be rejected by the Architect. Touch-up procedures which do not meet the finish requirements specified shall be permitted without the written permission of the Architect.

2.04 GLASS: Refer to drawings for schedule of types of glass. Glass shall meet requirements Domestic brand conforming to ASTM C1036 and ASTM C1048 for tempered, by Pilkington, Libbey-Owens-Ford, Viracon or equal. Substitutions will be considered. Glass and mirrors shall be factory labeled on each pane and labels shall not be removed until final acceptance is obtained. All tempered and heat-strengthened glass shall be processed in the horizontal position to eliminate tong marks. The maximum overall size, minimum thickness and type of glass shall conform to the applicable glass manufacturer's recommendations for the openings or sizes indicated on the drawings and the performance requirements as herein specified. Glass shall also conform to governing codes and regulations. Glass shall be designed to perform to a specified safety factor of 2.5 and sustain at maximum wind load a statistical glass breakage of no more than 8 lights per 1000 lights. All glazing and glazing materials shall conform to requirements set for in the GANA Field Glazing Manual

A. **Plate Glass**: Provide glass as scheduled on Drawings, glazing quality float, 1/4" thick unless otherwise shown or specified. All single glass units shall be tested, certified and carry the required label level of testing passed an U Value of 0.510 along with all other requirement.

B. **Tinted Glass**: Provide tinted glass as scheduled on Drawings, 1/4" thick unless otherwise indicated or specified. All single glass units shall be tested, certified and carry the required label level of testing passed an U Value of 0.510 along with all other requirement.

C. **Tempered Glass**: Furnish factory fully tempered glass. Handle and size glass in accordance with manufacturer's instructions. Furnish glass free of visible tong marks when installed. On each sheet, include an inconspicuous but visible label fused to the glass and placed in a lower corner, identifying the tempered glass. Provide fireman's tempered glass label if required by the local Fire Department. Furnish plate glass as scheduled on Drawings or indicated or required. All single glass units shall be tested, certified and carry the required label level of testing passed an U Value of 0.510 along with all other requirement.

D. **Insulating Glass Units**: Drawings and Specifications are based upon the use of insulating glass units conforming to the requirements herein, which establish intended types; refer to Section 01600 for substitutions.

1. All insulated glazing shall be glazed at the factory. All glazing shall be (Low E) glazing constructed to an overall minimum thickness of 7/8" with two lites of DSB tempered glass (1/8") as size and loading requires. All insulated glass units shall be tested, certified and carry the required label reflecting level of testing passed an U Value of 0.28 along with all other requirement.

E. **Spandrel Glass**: PPG unless otherwise indicated on drawings, heat strengthened, free of discernible distortion, or equal, color to match glass with factory applied polyester opacifying film.

2.05 DOORS FABRICATION: For entrance doors, the door stile and the rail face dimension of the Arcadia Entrances will be as detailed on Drawings

A. **Aluminum Entrance Doors**: Stile as detailed on drawings or as selected by Architect stile type with 10” bottom stile and water repellent treated mohair weatherstripping in aluminum retainers at all four edges. Aluminum finish to be finished as specified herein.

2.06 FLASHINGS: Gauge and overall dimensions shall be as shown on the Drawings. Flush butted joints with back-up plates to be used typically. Provide minimum 12" lap at flashing joinery with fasteners as required. Lapped surfaces of flashing to be joined in full bed of sealant. Mechanical fasteners to be used at flashing joints where required to maintain bond. Flashings to be furnished to match where exposed.

2.07 SHOP AND FIELD SEALANTS:

A. **For Structural Glazing** acceptable sealants are G.E. 1200 silicone, Dow Corning 795 silicon, or Pecosa "850" silicone.

B. **For Sealing** between window wall, curtain wall and adjacent work, acceptable sealants are silicones as manufactured by Dow Corning, G.E., or Pecosa. Select an appropriate sealant for joint size, movement, and substrates.

C. **General Sealant Requirements**: Locate and identify all sealants by product name on shop drawings. In using specified sealants or approved alternates, strictly observe the printed instructions of the sealant manufacturer regarding joint size limitations, mixing, priming and application. Where printed instructions are indefinite on the use of a primer, a primer shall be used. Unless printed instructions advise to the contrary, do not apply sealants when substrates are wet or when the temperature is below 40^{o}F.

D. **Color For Sealant** to be selected by Architect and not to be limited to standard colors.

2.08 NEOPRENE GLAZING GASKETS AND AIR SEALS: Glass and glazing materials and requirements are subject to a final review by the Architect. Substitutions in the interest of the performance, function, compatibility of materials, and safety may be proposed for architectural review. All proposals must be properly and adequately documented. Neoprene glass and glazing materials, including but not necessarily limited to, extruded glazing gaskets, glass setting blocks, jamb shims, bushings, tapes, separators, joint fillers and sealant backup gaskets shall be high quality ozone resistant, cured elastomeric virgin neoprene compounds conforming to the following specification standards:

1. Dense (Solid Neoprene): AAMA Standard SG-1-76 with molded corners.
2. Closed Cellular (Sponge) Neoprene: ASTM C509 with molded corners.

A. **Material Certification** for neoprene shall be as required to substantiate compliance with AAMA Standard SG-1-76 and ASTM C509 standard as applicable.

B. **Glazing Gaskets** shall be extruded with continuous integral locking projections to engage into the metal glass holding member, be designed to be in contact, at all times, with adjacent elements during dynamic loading, building and thermal movements and provide a watertight seal as required to meet the performance criteria.

C. **Roll-in Glazing and Back-Up Gaskets**: Shall be sized in lengths or units to provide for a minimum crowd-in of 1% to 2%, or as otherwise recommended

by the manufacturer, to insure against any pull-back at the corners. Roll-in Glazing and backup gaskets for any one light or glazed opening shall be continuous one-piece units with factory fabricated injection molded corners free of all flashing and burrs.

D. **Materials**: Recommendations and Details describing the proposed use, design and application procedures for neoprene glass and glazing materials shall be documented and fully described on the Shop Drawings.

E. **Setting Blocks and Edge Blocks**: Setting blocks used to support the glass shall be EPDM or neoprene and of between 80 and 90 Shore A Durometer hardness. Edge blocks used for centering the glass and preventing lateral walking shall be neoprene or EPDM and of between 60 and 70 Shore A Durometer hardness. Blocks shall be of a size and placed as recommended by FGMA Glazing Manual.

2.09 PANEL (INFILL) MATERIAL:

A. **Alucobond® Composite Material**

1. Size of panels shall be as indicated on drawings as to which opening shall received this infill panel.
2. Composite: Two sheets of aluminum sandwiching a core of extruded thermoplastic, formed in a continuous process with no glues or adhesives between dissimilar materials. Total composite thickness is 4mm.
3. Face Sheets: 0.020" thick aluminum (alloy to be 3003 for coil-coated sheet or 5005 for anodized).
4. Color and Coating: Provide color as scheduled or as selected by Architect.

PART 3 - EXECUTION

3.01 PROTECTION AND CLEANING: Debris caused by or incidental to the installation work will be promptly removed from the job site as the work progresses. Weep holes and drainage channels shall be unobstructed and free of dirt, rubbish and sealants. Upon completion of the work, remove protective coverings from exposed surfaces, and clean surfaces free of all soil and discoloration. Cleaning shall be in accordance with the provisions of the listed References and Standards and the requirements of the applicable manufacturers of materials. Cleaners shall be acceptable to the aluminum, glass, sealant, gasket and aluminum finishing manufacturers. Where doubt exists, make spot tests. Initial cleaning shall be the responsibility of the Contractor. When installation is complete, responsibility for final cleaning and protection shall pass to the General Contractor for the entire project. The General Contractor shall do all final cleaning. However, this Contractor or his Glass and Glazing Subcontractor shall initially clean all glass, remove excess sealant, tape etc. The General Contractor shall employ experienced workmen for final cleaning of glass. Methods of cleaning shall be provided by the Contractor. The cleaning procedure shall be monitored by the Contractor who has the responsibility to insure that no deleterious occurrences develop

which shall void his contractual responsibilities. Where work is to be installed within or adjacent to concrete, no window wall components other than built-in anchor devices shall be put in place until the concrete work is completed, including the removal of all forms, shoring, etc.

3.02 ANCHORAGE: Anchorage of the wall to the structure shall be by approved methods and in strict accordance with the approved Shop Drawings. After the window wall, curtain wall and entrances components are properly positioned all connections so designated on approved Shop Drawings shall be rigidly fixed by welding or other positive means. Anchorage assemblies and their related components shall be thoroughly scheduled and described on the Shop Drawings so that an installation can be evaluated to insure responsibility for furnishing and installing materials according to the Shop Drawings. Descriptive items shall include the movement and tolerances of related building and wall components including the direction and magnitude of thermal, building and seismic movements; materials, sizes, quantities and any special instructions as may be required. All primary window wall/curtain wall anchorage assemblies (attachment of window wall/curtain wall and related items to the building structure) shall receive 100 percent inspection by a licensed Deputy Inspector, the cost of which shall be borne by the Owner.

3.03 GLASS BREAKAGE DURING CONSTRUCTION: Glass breakage caused by the Contractor in executing his work or caused by the installation of faulty work by him shall be replaced by the Contractor at his own expense. Glass breakage caused by other Subcontractors because of negligence or any other reasons shall be replaced at the expense of the applicable Subcontractor at fault or the General Contractor. Broken glass shall be replaced within 5 calendar days. Openings caused by breakage shall be protected immediately.

3.04 ERECTION TOLERANCES: The window wall, curtain wall and entrances components shall be erected plumb and true in proper alignment and relation to established lines and grades, as shown on approved Shop Drawings. The installed window wall, curtain wall components shall conform to the erection tolerances.

3.05 GLAZING: Before the shop or field preglazing of the window wall units, openings shall be checked to see that they are square, plumb and in true plane. If found otherwise, glazing will not proceed until proper corrections are made. No tempered or heat-strengthened glass shall be cut after leaving the factory. Perimeter clearance must be sufficient to avoid point loading and provide for jamb and seismic blocking. Furnish detailed instructions for the installation of glass. Instructions and explanatory details shall include sequence of installation, method of installation for all materials (including the glass, glazing, setting blocks, jamb blocks, etc.) location of specific items such as the setting blocks and jamb blocks and any special instructions as may be required. Particular attention should be directed to the maintenance of the proper edge distance of bits on edges and the elimination of glass. Supply the following spare lights to the job site as part of this Contract: 4 each of each size of tempered or heat strengthened glass (excluding corners, doors and side lights).

3.06 PRODUCT DELIVERY, STORAGE AND HANDLING: All materials delivered to the site shall be stored in spaces provided by the General Contractor. Materials shall not be exposed to wetting or damage and shall be stored neatly, properly stacked on dunnage. Assembled units and/or their component parts shall be transported, handled and stored in a manner to preclude damage of any nature. Accessory materials required for erection at the site shall be delivered to the site in manufacturer's labeled containers. Remove units or components which are cracked, bent, chipped, scratched or otherwise unsuitable for installation and replace with new.

3.07 FIELD QUALITY CONTROL

A. **Method for field check** for water leakage, but not interpretation of results, shall conform to AAMA 501.2-83 and/or modified ASTM E 1105, except as modified herein.

B. **Periodically test sealant** in place for adhesion, using methods recommended by sealant manufacturer. Promptly replace any sealant, which does not adhere or fails to cure.

C. **Perform peel test on** at least 5% of glass openings with field applied structural silicone. Record date, locations and results. Submit records for information only. Replace silicone which rails tests.

3.08 WARRANTY:

A. **General**: All work included in the Section shall be fully guaranteed for performance, materials and workmanship for a period of not less than (5) Five Years from the date of beneficial occupancy (as certified by the Architect) unless otherwise noted herein. Guarantees and warranties shall be delivered to the Owner in duplicate, in an acceptable form, executed by an authorized officer or manufacturer of each material and shall be dated and notarized by a duly authorized Notary Public. Any failure in any of the window wall components shall result in an extension of the guarantee period until the deficiency is permanently repaired.

B. **Aluminum With Factory Finish**: Guarantee for at least (10) Ten Years that finish shall not develop excessive fading or non-uniformity of color, shall not crack or peel and shall not pit or corrode within following requirements:

C. **Sealants**: Provide a written statement in approved form guaranteeing that sealed joints shall remain watertight for a period of (20) Twenty Years. Guarantee shall further state that installed sealants are guaranteed against the following:

1. Adhesive or cohesive failure of joints.
2. Surface degradation or crazing greater than 3 mils in depth developing on surface of material.

3. Staining of surfaces adjacent to joints by sealant or primer by migration through building materials in contact with them.
4. Chalking or visible color change on surface of the cured sealant materials.
5. Shore "A" durometer hardness to the extent stated in the manufacturer's published literature.
6. Increase or decrease of Shore "A" durometer hardness (5 second reading) of sealant of more than 30% of value of 7-day value of Shore "A" durometer hardness of sealant.

Include guarantee provision agreement to repair and replace, at the Contractor's expense, sealant defects which develop during guarantee period. Guarantee shall include all labor and materials required to repair and replace faulty sealants.

D. **Glass**: Guarantee to remove and replace at the Contractor's expense, any and all glass lights that fail to meet the design and performance requirements. This replacement guarantee shall include all labor and materials required to remove and replace the faulty glass and installation.

E. **Defective Work**: Defective work shall be removed and replaced, at the expense of the Wall Contractor. Include in (5) Five Year guarantee period the provision to repair and replace, at the Contractor's expense, glass lights that fail in concentrated or massive quantities, or isolated glass breakage proven defective in manufacture or installation. Other isolated cases will be replaced at the expense of others, pending determination of cause. This special replacement guarantee shall include all labor and materials.

F. **Form of Warranty**: Guarantees and warranties shall be delivered to the Architect in duplicate, in an acceptable form, executed by an authorized officer of manufacturer of each material and shall be dated and notarized by a duly authorized Notary Public.

G. **Warranty Extension**: Any failure in any of the window wall components shall result in an extension of the guarantee period until the deficiency is permanently repaired.

H. **Corrections of Defective Work**: Should any work under this Contract be found defective in materials or workmanship, it shall be corrected in accordance with the following provisions: If, within Five (5) years after the date of substantial completion or within such longer periods of time as may be prescribed by laws or by the terms of any of the work is found to be defective or not in accordance with the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner. The Owner shall give such notice promptly after discovery of the condition. If exploratory work is required to determine the cause of the defects, the cost of this work shall be borne by the Contractor. The Contractor shall be responsible for continuing

corrections of defective work beyond the guarantee period if initial corrective measures where executed per the requirements as noted above but later found to be inadequate or not acceptable after the specified period.

3.08 MANUALS: Submit three (3) copies of detailed procedures for the periodic inspection, maintenance and cleaning of all applicable elements, including glass and finishes at completion of this Contract and when requested by the General Contractor.

END OF SECTION

SECTION 09100

METAL SUPPORT SYSTEMS

PART 1 - GENERAL

1.01 DESCRIPTION: Division 1 applies to this Section. Provide metal support systems complete metal support systems as indicated, specified, and required.

A. Work In This Section: Principal items include:

1. Metal stud framing and furring for plaster walls and ceilings.
2. Metal framing for gypsum wallboard walls and ceilings.
3. Metal backing plates for securing materials of other trades.
4. Installation of access panels on metal framing as furnished by other trades.

B. Related Work Not In This Section:

1. Lath and plaster.
2. Gypsum wallboard.
3. Hanger wires and framing for suspended grid acoustical ceilings.
4. Thermal and sound insulation.
5. Furnishing access panels for mechanical and electrical trades.
6. Firestopping.

1.02 QUALITY ASSURANCE:

A. Code: Conform all installations to Code. In case of conflict between Contract Documents and Code, the more stringent requirements shall govern.

B. Reference Specification: Except as modified herein or required by Code, conform metal support systems for plaster to the Plaster Metal Framing/Lath Manual of the California Lathing and Plastering Contractors Association Inc., hereinafter referred to as Ref Spec.

C. Tolerances: Erect walls and partitions on straight lines, plumb, free of twists or other defects, and contacting a 10-foot straightedge for its entire length at any location. Erect all horizontal framing level within a tolerance of 1/8" in 12-feet in any direction. Erect sloped framing in true planes to same tolerance as horizontal framing.

D. Regulatory Requirements: Comply with all applicable requirements of ASTM C 754 and the referenced Manual as referred to above.

1.03 SUBMITTALS: Refer to Section 01300 for procedures.

A. **Shop Drawings**: Shop Drawings showing details for each typical partition, wall, ceiling, and shaft support framing system will not be required, provided construction complies with Contract Documents.

B. **Product Data**: Submit complete materials list for all Work of this Section.

C. **Samples**: Submit such Samples as Architect may request.

PART 2 - PRODUCTS

2.01 MATERIALS:

A. **Standard Plaster Studs**: Pressed steel non-load-bearing type, punched, minimum 20 gage, by current member of the Steel Stud Manufacturers Association (SSMA), with floor and ceiling tracks of same gage as studs, and shoes. Studs and tracks shall have the manufacturer's standard rust-inhibitive paint finish except furnish hot-dip galvanized studs with matching tracks at all exterior locations and where indicated or specified.

B. **Screw-On Drywall Studs**: ASTM C645 and following requirements:

1. Standard Drywall Studs: Of minimum 25 gage electrogalvanized steel having punched utility openings and knurled flanges at least 1-1/4" wide, with flange returns, except where 20 gage or heavier is shown or specified.
   a. Roll-formed C channel with knurled edges and keyhole shaped punched openings along the web, widths as indicated on drawings.
   b. Shaftwall Studs: C-H type studs, as manufactured by US Gypsum or equal, size as required or as indicated on the drawings.
2. Stud Height: Gages specified above are minimum. Where required stud height exceeds Code approvals, provide heavier gage studs and/or decrease stud spacing as necessary to conform to Code approvals, at no extra cost to Owner.
3. Stud Accessories: Provide all standard related accessories including floor and ceiling tracks, clips, fasteners, and the like, of the same manufacture as each type of stud specified, as required for complete installations.

C. **Furring and Runner Channels**: Hot-rolled or cold-rolled steel channels coated with rust-inhibitive paint and weighing per 1,000 lineal feet, before coating, not less than:

Size	**Hot-Rolled**	**Cold-Rolled**
3/4 inch	300 lbs.	300 lbs.
1-1/2 inch	1120 lbs.	475 lbs.
2 inch	1260 lbs.	590 lbs.

D. **Screw-On Drywall Furring Channels**: ASTM C645, minimum 0.022" thick zinc coated steel, minimum 1-3/4" face, 2-3/4" base span, and 7/8" furring depth.

1. Hat Shaped: 7/8” deep with 1-3/8” screwable surface and 1/2” wing flanges equal to USG DWC-25.
2. Z-Shapes: Fabricated with 7/8” attachment flange, 1-1/4” face flange, by depth as indicated on drawings, equal to USG Z-Galvanized Furring Channels.
3. Resilient Channels: Equal to USG RC-1 galvanized resilient channels , 1/2”’ deep.

E. **Stiffeners and main Runner Channels**: Cold-rolled or hot-rolled steel channels, size as required, coated with non-inhibitive paint. Use Bridge Clip as manufactured by The Steel Network, or equal with locking down cold rolled channels.

F. **Ceiling Deflection Track**: Provide one of the following: 1) 20 gage No. 53 Flex Track, deep leg track manufactured by Superior Metal Trim, or equal conforming to requirements of ASTM C645 or 2) VertiClip SLD deflection clip, in conjunction with 25 gage standard track for interior walls.

G. **Wires**: ASTM C 754, soft-annealed galvanized steel wire, 8 gage for hanger wires and 16 gage for framing unless otherwise specified.

H. **Sound Insulating Tape Seals**: "Bear Tape" by Norton Industries, or equal.

I. **Acoustical Sealant**: By USG, Gold Bond, or equal, permanently resilient type.

J. **Metal Primer**: Red Oxide Primer or equal.

K. **Steel Backing Plates**: Fabricate of minimum 4" wide by l6 gage steel except as otherwise indicated. Apply shop coat of metal primer.

2.02 ACCESS PANELS: Inryco/Milcor; Style K at plaster; Style DW for wallboard finish; Style M-Standard at masonry; Style M-Stainless at ceramic tile; Style AP or AT as required at ceilings. For fire-rated walls, provide fire-rated access doors bearing required UL fire-resistive label.

PART 3 - EXECUTION

3.01 INSTALLATION OF STUD TRACKS: Bolt or screw fasten to metal and anchor at least 1-1/4" into concrete with bolts and expansion shields, sleeved "dryvins", cinch anchors, screws and lead plugs, drilled and bolted steel shells, powder-driven fasteners, or other approved device. Concrete nails are not acceptable. Secure all tracks within 6" of ends and at spacing to resist design loads, maximum 36" centers between unless otherwise indicated.

3.02 PLASTER WALL FRAMING AND FURRING:

A. **Standard Plaster Studs**: Install for walls not otherwise indicated or specified, spaced at 16" centers, complete with tracks and shoes. Allow for deflection of structure above. Provide doubled studs at jambs of openings more than 16" wide. Exterior walls shall be vertically self-supporting such that gravity loads are not delivered to perimeter roof beams. Connections to the perimeter roof beams shall allow for beam deflection.

1. Lateral Bracing: Lateral bracing shall be provided by use of gypsum board and gypsum sheathing or by horizontal straps or cold-rolled channels. Bracing shall conform to Section D3 of the AISI Specifications.
2. Wall Openings: At doors and other openings more than 16" wide, install lateral bracing horizontally not over 6" above opening head. Extend beyond the second stud on each side of opening. Provide lateral bracing 6" below sill of wall openings in same manner.

B. **Wall Furring For Plaster**: Install metal stud or channel furring as indicated. Secure channel furring with adjustable steel brackets at maximum 32" centers vertically and horizontally.

C. **Welding Repair**: Wire brush, scrape, and remove burned or damaged factory paint finish. Coat all welds and bare metal with metal primer.

3.03 WALL FRAMING AND FURRING FOR GYPSUM DRYWALL:

A. **Screw-On Drywall Studs**: Provide 25 gage studs at maximum 24" centers except as otherwise shown, specified, or required under Subparagraph "Stud Height". Secure to top track in manner that allows for deflection of structure above. Provide full height doubled studs at jambs of openings. Form heads and sills of openings with track sections screwed or bolted to jamb studs, unless otherwise shown. Install 16 gage studs at wall-hung lavatories, urinals, grab bars, wall-hung equipment, and elsewhere shown.

B. **Walls Over 6" Wide**: Where partitions are shown with stud dimensions more than 6" in depth, install two rows of 2-1/2" minimum wide studs, using 1-1/2" runner channel cross ties at 16" centers vertically and 24" centers horizontally, all bolted, screw fastened, or welded in place. In lieu thereof, install systems equal to Expandable partition No. 7 (Blue Diamond Company) in conformance with manufacturer's requirements.

C. **Wall Bracing**: Lateral bracing shall be provided by use of gypsum board and gypsum sheathing or by horizontal straps or cold-rolled channels. Bracing shall conform to Section D3 of the AISI Specifications. At heads of all doors, and heads and sills of wall openings, provide lateral bracing extending to the second stud beyond each side of jambs.

D. **Wall Furring**: Install metal stud or channel furring as indicated.

3.04 SUSPENDED CEILINGS, SOFFITS, AND FURRING:

A. **Hanger Wires**: Secure to the structure above according to Code and the approved submittal. Allow sufficient length for two or more complete turns around runner channels at proper ceiling height.

B. **Suspended Plaster Framing**: Provide 8 gage hanger wires at maximum 36" centers along 1-1/2" runner channels spaced at maximum 48" centers, and 3/4" furring channels spaced at maximum 16" centers, all wire tied. Install the framing for unrestrained ceilings and soffits unless otherwise shown.

C. **Suspended Gypsum Wallboard Framing**: Provide 8 gage hanger wires at maximum 48" centers along 1-1/2" runner channels spaced at maximum 48" centers, and screw-on drywall furring channels spaced at maximum 16" centers; secure to runners with Code approved galvanized steel clips or wire ties.

D. **Connections**: Turn twice or saddle tie hanger wires around runner channels and twist three times around standing wire. Adjust hanger wire to bring furring and ceilings to level and true plans. Lap runner channels a minimum 12" at splices and tie with a double wrap of 16 gage wire 2" from each end of splices. Saddle tie furring channels to each runner channel with not less than two strands of 16 gage tie wire. Lap furring channels 8" minimum at splices and tie with a double wrap of 16 gage tie wire 1" from each end of splices.

E. **Suspension Under Ducts**: For hangers spaced at 4 to 5-1/2 foot centers, provide 6 gage hanger wires with minimum 2" runner channels at maximum 48" centers. For greater spans, design system for live load of 10 pounds per square foot of area plus dead load and detail in Shop Drawings.

F. **Furring**: Provide framing for horizontal furring as shown and required. Conform to above requirements as applicable.

3.05 BACKING AND ANCHORAGE: Install and attach to metal studs or furring for anchoring items indicated or specified in other Sections. Comply with approved submittals specified under other Sections as applicable to steel backing. Backing may be omitted where anchorage for wall-hung items is directly into steel studs of 18 gage or heavier, or items are furnished with equivalent mounting devices. Install backings of lengths to span over at least two supports, equipped with two countersunk machine screws at each support except backing may be welded to supports 18 gage or heavier. Wall-mounted items requiring backing include without limitation the following:

1. Wall railings.
2. Grab bars.
3. Toilet compartments and urinal screens and toilet room accessories.

4. Millwork.
5. Equipment (where indicated on drawings and in equipment schedule)

3.06 CONNECTION TO CEILING: Provide premolded neoprene filler strips matching the ceiling profile for non-fire-rated walls and partitions covered on one or both sides up to decking. For fire-rated walls and partitions, provide minimum 26 gage galvanized steel closure plates at tops of partitions fastened to decking. Use plates precision cut to fit the decking profile, installed on both sides, and pack the void spaces with UL listed and labeled incombustible mineral wool safing insulation. Where the top tracks are parallel to ceiling and do not fully close ceiling spaces, provide a safing insulation filler and minimum 18 gage galvanized steel plates screw fastened to close the ceiling spaces and secure the top tracks to the plates. Fully detail all conditions in Shop Drawings.

3.07 ACCESS PANELS: Install and rigidly connect to metal framing. Coordinate the exact required locations with related trades. On acoustical unit ceilings, install the panels to align with and maintain the grid pattern. Check all other Sections of Specifications for access panels specified to avoid duplication.

END OF SECTION

SECTION 09250

GYPSUM WALLBOARD

PART 1 - GENERAL

1.01 DESCRIPTION: Division 1 applies to this Section. Provide gypsum wallboard complete as indicated, specified, and required.

A. Work In This Section: Principal items include:

1. Gypsum wallboard finish on walls and ceilings.
2. Interior tile backer board.
3. Joint, edge, corner, and fastener finishing.
4. Sound insulation in gypsum wallboard partitions.
5. Sound and airsealing Work of this Section.
6. Skimcoat finish where scheduled.

B. Related Work Not In This Section:

1. Wood/metal stud support framing.
2. Thermal insulation.
3. Painting.

1.02 SUBMITTALS: Refer to Section 01300 for procedures.

A. Product Data: Submit covering wallboard installations, including accessories, finishing, sealing, and manufacturer's written installation instructions with copies of Code approvals for each wall, ceiling, and shear wall system.

B. Samples: Submit such Samples as Owner and/or Architect may request.

1.03 JOB CONDITIONS: Make a detailed inspection of areas and surfaces to be enclosed or covered by gypsum drywall and arrange for correction of defective workmanship or materials. Ascertain that other Work enclosed by drywall has been inspected and approved before starting installation; otherwise, uncover as directed at no extra cost to Owner.

PART 2 - PRODUCTS

2.01 MANUFACTURE: Refer to Section 00880 for product and finish selections. Use products of only one manufacture throughout for each specialty item specified unless otherwise noted or approved.

2.02 MATERIALS:

A. **Gypsum Wallboard**: ASTM C36, provide 5/8" Type X or Type C gypsum board, or any other type of drywall that may be required by fire rated assemblies shown on drawings, tapered edges for exposed surfaces, regular grade by the Code. For walls in toilets and bathrooms, and where indicated, provide Type W/R or Type X W/R water resistant boards as required by the jurisdiction and where recommended by the Gypsum Association. Gypsum wallboard manufacturer and type shall match description of rated fire assemblies. Assemblies may be proprietary.

B. **Interior Tile Backer Board**: For walls in toilets and where indicated on drawings or required, provide Durock or WonderBoard Tile Backer Board. Install per manufacturer's recommendations.

C. **Screws**: ASTM C646, corrosion-resistant self-tapping bugle-head spiral threaded type, minimum 1" long except 1-5/8" for double layer walls or longer where RC channels are used, lengths to penetrate all supporting metal at least 3/8". Furnish specially hardened type screws where required by code for support.

D. **Drywall Nails**: ASTM C514, supplied or recommended by the wallboard manufacturer, No. 13 gage 1-5/8" long, 19/64" head, Dry Tite, acid etched or No. 098 gage, 1-3/8' long annular ringed 6d, cooler nails.

E. **Metal Trim and Corner Beads**: Of electrogalvanized steel with taping flanges, as manufactured or recommended by drywall manufacturer, corner beads at all outside corners and "J" shaped trim members where abutting other materials. Provide "bullnose" corner beads at all areas, unless otherwise required by the Architect/Owner.

F. **Finishing Materials**: ASTM C475, joint tape, joint bedding compound, finishing cement, adhesive, and laminating compounds supplied or recommended by wallboard manufacturer.

G. **Calking Compound**: Permanently non-hardening type as supplied or recommended by wallboard manufacturer.

H. **Sound Insulation**: Owens Corning Fiberglass batts maybe used in locations as approved by the Architect in advance for interior sound control. “Thermafiber” friction fit fibrous batts, nominal 2.80 pcf density by USG Corp are required for fire rated assembly meeting the required 2.80 pcf density as stated above.

I. **Resilient (RC) Furring**: ASTM C645, minimum 25 gage, either “Z” or “hat shaped” as indicated or required, designed for sound reduction by gypsum wallboard manufacturer.

PART 3 - EXECUTION

3.01 INSTALLATION OF GYPSUM WALLBOARD:

A. **General**: Perform wallboard installation and finishing according to ANSI A997.1 and the wallboard manufacturer's instructions. Do not install wallboard until building is weathertight. Conform to fire-rating requirements, Building Code approvals, and requirements herein.

B. **Temperature**: Maintain minimum 65 degrees F within building during installation. Furnish ventilation to eliminate excessive moisture.

C. **Fasteners**: Install screws or nails so heads are below wallboard surface without breaking surface paper around the fastener. Space screws according to listed assembly requirements.

D. **Openings**: Accurately cut and fit the wallboard at openings. At door and other openings, cut wallboard to continue across area above opening head; do not cut board to both jambs and fill in area over openings with separate pieces. Make the dimension from joint over head of an opening to jamb of openings 6" minimum. Stagger joints on opposite side of partition. Maximum opening around electrical outlets 1/8" calked.

E. **Single Layer Walls**: Place wallboard horizontally with long dimension across the studs or in one-piece vertical heights, vertical joints centered on supports and staggered on walls so as not to occur on opposite sides of same stud. Secure to each stud and tack with screws keeping screws 3/8" from edges.

F. **Multi-Layer Walls**: Apply first layer same as for single layer walls, all joints in subsequent layers staggered with respect to first layer.

G. **Ceilings**: Apply wallboard with long dimension at right angles to the framing, end joints staggered and centered over framing. Use boards of maximum practical length to minimize end joints and properly support around cutouts and openings. Secure with screws or nails.

3.02 JOINT TREATMENT AND FINISHING: Apply tape bedding compound, tape, and at least three coats of finishing cement on exposed joints, and other joints as required for sound insulating or fire-rated construction. Apply joint cement and two or more layers of finishing cement over screw or nail heads. Treat all inside corners with joint cement, tape, and finishing cement. Treat all outside corners with corner beads and finishing cement. Provide metal casing beads at all edges of gypsum wallboard which abut ceiling, wall, or column finish, and elsewhere as required, such as openings, offsets, etc. Make all exposed joints, trims, and attachments non-apparent following application of paint or other finishes; if the joints and fasteners are apparent, correct defects as directed with no extra cost to Owner. Seal the raw edges of plumbing openings and of boards that have been cut to fit with manufacturer's recommended sealant brushed on. When entire

installation is completed and prior to installation of finish materials by other trades, correct and repair broken, dented, scratched, or otherwise damaged wallboard surfaces.

3.03 AIR SEALING: Seal connections between shaft walls, ducts, plenums, and building structure airtight with specified calking compound or tape and cement, including vertical shafts.

3.04 SOUND INSULATED PARTITIONS: Install sound insulation continuously between studs from finish floor to top of wall in which it occurs. Where cutouts are made for J-boxes, conduit, piping, and like items, back wall insulation with insulation so that one additional layer of insulation at least 24" wide and high is placed in back of cutout. Snugly fit in place free of gaps or holes. Calk between the wallboard edges and floors, walls, and at structures above other than acoustical ceilings with calking compound, forming a complete perimeter seal. Calk around outlet boxes and other penetrations in same manner. Where resilient channels occur a separate fastener will attach the RC channel to the framing member. The gypsum wallboard will be attached to the RC channel and will at no time fasten directly to a framing member.

3.05 SKIM COAT FINISH: Provide where scheduled, apply USG Product that will produce a "orange peel" texture or “smooth” finish as indicated and as approved by Owner/ Architect. Apply after taping and screw head finishing is dry and sanded to produce surfaces free of trowel marks or other defects.

A. **GA 214** - Gypsum wallboard finish shall conform to requirements of GA 214, and as specified herein. Levels required for the Work are described as follows:

Level 3:

All joints and interior angles shall have tape embedded in joint compound and one additional coat of joint compound applied over all joints and interior angles. Fastener heads and accessories shall be covered with two separate coats of joint compound. All joint compound shall be smooth and tree of tool marks and ridges.

Level 4:

All joints and interior angles shall have tape embedded in joint compound and two separate coats of joint compound applied over all flat joints and one separate coat of joint compound applied over interior angles. Fastener heads and accessories shall be covered with three separate coats of joint compound. All joint compound shall be smooth and free of tool marks and ridges.

END OF SECTION

SECTION 09300

TILE MASONRY

PART 1 - GENERAL

1.01 DESCRIPTION: Division 1 applies to this Section. Provide tile masonry finish complete as indicated, specified, and required.

A. Work In This Section: Principal items include:

1. Glazed ceramic tile walls and bases.
2. Unglazed porcelain tile floors.
3. Expansion joints.
4. Brass, zinc, bronze or aluminum edging angles at exposed floor tile edges.

B. Related Work Not In This Section:

1. Gypsum and cementitious wallboard backing for tile walls and bases.
2. Concrete subslabs.
3. Membrane waterproofing.
4. Metal thresholds.

1.02 QUALITY ASSURANCE:

A. Reference Standards: Conform to following standards unless otherwise required herein:

1. American National Standards Institute (ANSI).

A108.1	Glazed Wall Tile, Ceramic Mosaic Tile, Quarry Tile and Paver Tile Installed With Portland Cement Mortar.
A108.5	Ceramic Tile Installed With Dry-Set Portland Cement Mortar.
A108.6	Ceramic Tile Installed With Chemical Resistant Water Cleanable Tile-Setting and Grouting Epoxy.
A118.1	Dry-Set Portland Cement Mortar.
A118.3	Chemical-Resistant Water-Cleanable Tile Setting and Grout Epoxy.
A118.4	Latex-Portland Cement Mortar.
A137.1	Standard Specifications for Ceramic Tile.

2. Tile Council of America (TCA).
   a. Handbook for Ceramic Tile Installation, Current Edition.

1.03 SUBMITTALS: Refer to Section 01300 for procedures.

A. **Samples**: Obtain Architect's instructions and submit the following for selection and approval:

1. Each type, shape, and trimmer of tile in each color proposed for use.
2. Grout colors for tile.
3. Cured sealant colors for expansion joints in tile.
4. Brass, zinc, bronze or aluminum edging angles, 12" lengths.

B. **Product Data**: Submit the manufacturer's printed directions for latex mortar and latex waterproofing.

C. **Master Grade Certificates**: Submit for each lot of tile before installing.

1.04 MOCK-UP: If required by Architect provide all labor and materials to build and test mock-up. Mock-up shall accurately represent job conditions including joints, sealants, tile underlayment, anchors and tile finishes. Construct mock-up in strict accordance with approved Shop Drawings. Any deviations from or additions to details shown on Drawings are subject to the Architect's approval.

1.05 PRODUCT DELIVERY AND STORAGE: Deliver all tile to the site in unopened factory containers sealed with Grade Seal bearing printed name of manufacturer and the words "Standard Grade". Keep grade seals intact and containers dry until tiles are used. Keep cementitious materials dry until used.

1.06 JOB CONDITIONS:

A. **Conditions**: Inspect and verify surfaces according to Section 01400 and report defects to Architect for correction before proceeding.

B. **Protection**: Provide protection wherever required. Do not use lumber or other material likely to stain or deface installed materials. Close tile flooring to traffic completely for 24 hours after installation; thereafter, permit traffic only over protective covering of heavy paper or equivalent.

PART 2 - PRODUCTS

2.01 BASIC MATERIALS: Dal Tile or approved equal.

Portland cement:	ASTM C150. Type I or II, low alkali.
Dry-set portland cement mortar:	ANSI A118.1, white or gray as specified.
Hydrated lime:	ASTM C207, Type S.
Mortar sand:	ASTM C144, at least 4% passing No. 100 sieve.

Joint sand:	Same as mortar sand except as passing No. 30 sieve.
Water:	From domestic potable source.
Admix:	Anti-Hydro, Sika Red Label Suconem, or equal.
Reinforcing mesh:	Galvanized welded wire mesh, 1-1/2" by 2" mesh or 2" square mesh, minimum 16 gage, or equivalent or equal steel cross-section area.
Metal lath:	Expanded from galvanized steel sheets, 3.4 pounds per square yard, self furring type, galvanized nails, or as specified for reinforcing mesh.
Latex mortar:	ANSI A118.4 (factory inclusion of aggregate is not required), one of the following, or equal: Mer-Krete Tile Setting Adhesive. Custom-Crete Custom Building Products. Laticrete by Laticrete International.
Latex admix:	For joint grout, by same manufacturer as above latex mortar.
Epoxy, tile setting mortar and grout:	ANSI A118.3, as indicated on drawings and color as selected by Architect.
Waterproofing membrane:	The Noble Company, Chloroloy 240-CPE for wire reinforced mortar beds. Nobleseal TS for thin set tile applications, or approved equal.
Color pigments:	Pure ground mineral oxides, non-fading, alkali and lime proof, factory weighed and packaged.
Tile backer board:	Provide GP Dens Shield or Durock backer boards, thickness as indicated for interior and exterior applications as approved by the Architect.

2.02 TILE MATERIALS: Standard Grade conforming to ANSI A137.1, of following types. Perforated paper backed tile is not acceptable where the paper remains as a permanent part of installation.

A. **Glazed Wall Tile**: Tile as scheduled on drawings, colors as selected, dust pressed, white body, square edged, with two integral joint spacing lugs on all edges, matte glazed, with matching integral cove base having spherical corner and angle units, integral bullnose for external angles and exposed edges, and integral cove for internal angles.

B. **Unglazed Floor Tile**: Tile as scheduled on drawings colors and patterns as selected, porcelain type unglazed tile, cushion or all-purpose edges, premium colors and patterns, square unless otherwise shown.

C. **Non-Slip Unglazed Floor Tile**: As above for unglazed floor tile, containing at least 7-1/2% of non-rusting abrasive aggregate. Provide for floors and tile floors in wet areas.

2.03 SETTING BED MORTAR: Machine mix mortar after first dry mixing materials. Mix mortar not less than 5 minutes after water is first added. Accurately measure materials using calibrated measuring boxes; shovel measurement is not permitted. If required add admix for flexibility as recommended by Manufacturer. Discard mortar that is not placed and compacted before initial set is reached. Measure all materials by volume. Provide epoxy mortar where required by Code, conforming to ANSI A118.3, color as scheduled or as selected by Architect.

2.04 BOND COAT: White or gray portland cement mixed with water and latex admix to a creamy consistency. For glazed wall tile only, gray or white dry-set portland cement mortar mixed in the same manner may be used. Do not add water or cement after initial mixing, and discard material not used prior to initial set.

2.05 TILE JOINT GROUT: Provide Laticrete Premixed, Sanded Grout as indicated on the drawings.

2.07 EDGING ANGLES: Extruded aluminum as indicated or required of minimum 1/8" leg thickness, as approved.

PART 3 - EXECUTION

3.01 PREPARATION: Clean substrates of dust, dirt, oil, grease, and other deleterious substances. Conform preparation to requirements of the applicable Reference Standards and to recommendations of manufacturers of materials used.

A. **Concrete Slabs To Receive Mortar Setting Beds**: Keep concrete damp for at least 8 hours and scrub with a neat portland cement slurry just before placing setting bed mortar.

B. **Gypsum Wallboard or Cementitious Board**: Prime with epoxy or latex primer as required or admix if required by instructions of epoxy or latex mortar manufacturer.

3.02 TILE INSTALLATION: Arrange tile surfaces according to the patterns detailed or approved. Accurately set tile with flush well-fitted joints, finished in true plan, plumb, square, sloped or level as required. Neatly cut and fit the tile closely against abutting surfaces. Construct joints of uniform width. Form corners and returns with approved trimmers. Neatly drill and cut tile without marring. Carefully grind and joint tile edges and cuts. Fit tile close around outlets, pipes, and fixtures so that escutcheons or collars overlap the tile. Arrange surfaces so that not less than half-size tile occurs. Drill holes for pipe penetrations through wall tile, do not cut or split tile, and set with tight ungrouted joint.

A. **Reinforcing Mesh**: Provide mesh at the center of all mortar setting beds that are not direct-bonded to concrete slabs, lapped one full mesh and wire tied at splices. Keep mesh 1" away from expansion joints and walls. Run mesh up walls and over curbs of shower receptors, but do not secure through waterproofing.

B. **Mortar Bed Set Tile**: Dampen glazed wall tile according to applicable Reference Standard. Apply setting bed mortar, mixed as specified, and screed surfaces of setting beds to required planes. Spread no more mortar than can be covered with tile before mortar initially sets. No retempered mortar may be used. Lay tile to avoid small or unsightly cuts. Set tile with uniform joint width. Trowel a 1/32" to 1/16" thick bond coat over the plastic setting bed mortar just prior to setting tile or apply to back of each tile as placed; use white bond coat where white tile joints occur. Set tile in position and beat firmly into the mortar. Bring tile faces to a true and proper plane. Complete all beating and leveling before mortar sets and in no case later than one hour after first placing. When ready, wet and remove paper and glue, avoiding the use of excess water. At this time adjust any out-of-line or out-of-level tile.

C. **Thin-Set Tile**: Mix epoxy or latex mortar according to manufacturer's directions. Do not dampen tile. Conform to the instructions of both mortar and tile manufacturers. Apply mortar to areas no larger than can be covered with tile within 30 minutes. Remove traces of mortar from tile surfaces before final set.

D. **Latex Waterproofing**: Apply according to manufacturer's directions, sealed into floor drains and turned up at walls. Pond test for 24 hours, repair all leaks, and retest until no leakage occurs.

E. **Joint Sizes**: Install tile with uniform joint widths as follows:

1. Glazed wall tile, 1/16" with maximum 1/8" at any location, unless otherwise indicated.
2. Porcelain floor tile, 1/16" with maximum 1/8" at drains and any other location, unless otherwise indicated.

F. **Porcelain Tile Joint Grouting**: Grout joints full after washing out and saturating with clean water. Mix grout with water to a thick creamy consistency and force into joints for entire joint depth, flush with surface. Clean off all excess and fill skips and gaps before grout sets. Provide dampness for minimum 3-day curing and polish with clean dry cloths.

G. **Calking**: Calk all penetrations through wall tile with latex mortar or sealant conforming to Section 07900, concealed by collars or escutcheons.

3.03 EXPANSION JOINTS: Joints shall extend down for the full depth of mortar setting bed. Provide joint backing and sealant according to Section 07900, sealant of color to match joint grout and maximum 3/8" depth. Provide expansion joints in mortar set floor tile and paving areas where indicated and where abutting rigid structures. Install at toe of cove base where base occurs. If not indicated, install expansion joints in the same manner and at maximum 16-foot intervals in runs, located as directed. Provide sealant joints that closely match the color and appearance of grouted joints but of minimum 1/8" width. Provide as required by installation and as recommended by the Tile Council of America. Joints to comply with Method EJ171. Consult Architect as to placement.

3.04 CLEANING: Remove stains, cement, grout, and foreign matter when grouted joints fully set. Do not use acid. Repair all defective joints as approved.

END OF SECTION

SECTION 09510

ACOUSTICAL CEILINGS

PART 1 - GENERAL

1.01 DESCRIPTION: Division 1 applies to this Section. Provide acoustical panel ceilings systems complete as indicated, specified, and required.

A. Work In This Section: Principal items include:

1. Suspended exposed grid acoustical unit ceilings.
2. Metal trims and moldings.
3. Access facilities.

B. Related Work Not In This Section:

1. Air conditioning grilles and fixtures.
2. Lighting fixtures and wiring.
3. Finish carpentry.

1.02 SUBMITTALS: Refer to Section 01300 for procedures.

A. Samples: Submit Samples of all acoustical units and of each grid component with metal trims and moldings.

B. Maintenance Material: Deliver to Owner, in unopened cases, at least 1% of total quantities of each type of acoustical unit installed in the Work.

1.03 PRODUCT DELIVERY, STORAGE, AND HANDLING: Deliver to site in the manufacturer's original unopened containers. Keep all materials dry, clean, and protected from deterioration.

1.04 JOB CONDITIONS: Verify locations of various electrical and mechanical fixtures and equipment items installed above ceilings and the required access to dampers, valves, and similar items. Coordinate the locations of hanger wires and ceiling installations with such fixtures and equipment to obtain neat symmetrical result with minimum cutting or patching of acoustical units.

1.05 WARRANTY: Refer to Section 01740. Furnish to Owner a warranty against defects of materials or workmanship including sagging or disconnection of grid systems, disintegration of acoustical units, or improper operation of access facilities, for a period of 3 years.

PART 2 - PRODUCTS

2.01 ACOUSTICAL UNITS: Provide 24” x 24” and 24"x 48" lay-in units as scheduled on drawings or that are indicated to match existing tiles, location by location as manufactured by Armstrong World Industries or approved equal by USG Interiors, matching approved Sample sand meeting specified requirements as evidenced by data in AIMA Bulletin.

A. **Flame Spread Rating**: Furnish incombustible acoustical units rated 0 to 25 flame spread rating (Class I) per ASTM E84 Tunnel Test.

2.02 GRID SUSPENSION SYSTEMS: Designed to support ceiling loads with deflections not exceeding L/360 of spans, manufactured of zinc-coated steel.

A. **Manufacturer**: Provide grid units as scheduled on drawings by Armstrong World Industries, or equal units by USG – Interiors or approved by the Architect.

B. **Exposed Grid System**: Conforming to ASTM C635, intermediate grids bearing UL label or listing as a 4-pound grid. Provide bulb-top main tees at least 1-1/2" high, cross tees of same type except may be 1" high, all tees with appropriate 15/16” grid matching existing unless another grid as scheduled on drawings. Factory finish exposed grid surfaces with low-luster enamel of color to match acoustical units.

C. **Trims and Moldings**: Provide “Shadow” mold at acoustical grids of minimum 0.024" thick zinc-coated steel, exposed surfaces factory painted with low luster enamel in color to match grid.

D. **Hanger Wires**: Minimum 12 gage galvanized annealed steel wires. Furnish heavier gage if required by Code or UL Design Approval for grid system furnished.

PART 3 - EXECUTION

3.01 GENERAL INSTALLATION REQUIREMENTS: Install ceilings under the supervision of an experienced superintendent. Consult with and coordinate installation with other trades. Install suspended ceilings level within a tolerance of 1/8" in 12-feet in all directions. Conform to approved submittals. Inspect and verify existing conditions according to Section 01400.

A. **Pattern**: Unless otherwise indicated or specified, install ceilings in a regular pattern without border, joint lines parallel to walls. Install acoustical units symmetrically about centerlines of each room or space, avoiding narrow units at walls. Cut and closely fit units to ceiling penetrations.

B. **Framing For Lighting and Mechanical Equipment**: Obtain information from involved trades and provide additional hanger wires, framing members, and supports in the grids as required for lighting and mechanical fixtures, equipment, and all other loadings imposed on grids, with a safety factor of 4 minimum. Provide main grid tees along all edges of mechanical and lighting fixtures bearing on the grids.

C. **Seismic Bracing**: Provide splayed seismic bracing wires as shown and required by Code. Fully detail in Shop Drawings.

3.02 SUSPENDED GRID CEILINGS: Conform to the UL Design Approval for the grid.

A. **Hanger Wires**: Space wires at maximum 48" centers along main tees and connect to structure above as shown in approved Shop Drawings.

B. **Vibration Isolators**: Equip hanger wires with vibration isolators where located below and within 10-feet of rooms and spaces containing or supporting mechanical equipment.

C. **Grid Members**: Space main tees at maximum 48" centers and install across tees to complete the grid. Lock suspension members together to form joints that resist 100 pounds tension and compression. Cope bottom flanges of tees, where exposed, for flush tight connections with metal trims at vertical surfaces.

D. **Exposed Grid Acoustical Units**: Install units with all edges bearing on tees and secured with hold-down clips. Closely fit units to ceiling penetrations.

E. **Trims and Moldings**: Provide painted metal trims and shadow moldings at walls and other vertical surfaces and penetrations, joints closely butted, mitered at angles and corners, and flush. Lapped joints are not permitted.

F. **Ceiling Offsets**: Provide framing, trims, and other finishing materials as shown or required to properly finish at offsets or ceiling breaks, types as indicated, directed, and approved.

3.03 REPAIR OF EXISTING ACOUSTICAL UNIT CEILINGS: Generally conform to requirements specified for new ceilings. Remove all damaged grid members or units, clean and prepare the backings, and provide new matching Work. Removed materials that are sound and undamaged may be reinstalled.

3.04 REPAIR, CLEANING, AND COMPLETION: Remove and replace all discolored, broken, or damaged materials. Completed ceilings shall present a smooth plane surface free of edge or corner offsets or breaks, cupping, scratches, gouges, stains or hand marks, or other defects. Clean exposed surfaces and remove foreign matter.

END OF SECTION

SECTION 09650

RESILIENT FLOORING

PART 1 - GENERAL

1.01 DESCRIPTION: Division 1 applies to this Section. Provide resilient flooring and base complete as indicated, specified, and required.

A. Work In This Section: Principal items include:

1. Vinyl composition tile flooring
2. Sheet (self-coving) vinyl flooring
3. Rubber and/or vinyl base
4. Reducer strips.

B. Related Work Not In This Section:

1. Raised metal thresholds.

1.02 QUALITY ASSURANCE: Furnish products by the following manufacturers, or approved equals:

Resilient Flooring	**Rubber Base**
Armstrong World Industries	Burke Rubber Company
Mannington Commercial	Roppe Rubber Corporation

1.03 SUBMITTALS: Refer to Section 01300 for submittal procedures.

A. Samples: Submit the following for selection and approval:

1. After selection, submit full-size Samples of each selected color or pattern of flooring and base for final approval.
2. Reducer strips and trims.

B. Data: Submit copies of the flooring manufacturer's recommended standard dryness testing, ADA, Section 4.29 compliance and required test results, and installation instruction for each type of flooring and base for approval.

C. Moisture Testing Results: Submit written reports covering all moisture test results for record purposes only and not for approval.

D. Maintenance Materials: At completion, deliver following maintenance materials to the Owner in unopened factory containers or in sealed cartons with labels identifying the contents, matching installed materials. Include unopened cans of adhesives adequate to install the maintenance materials.

1. Vinyl composition tiles, 5 unopened boxes of each color and pattern.
2. Sheet vinyl flooring, one piece 20-feet long by full roll width for each location, type and pattern of flooring.
3. Rubber base, at least 100 lineal feet with 10 end stop units, 15 outside corner units, and 15 inside corner units.

1.04 PRODUCT DELIVERY AND STORAGE: Deliver materials to site in the manufacturer's original unopened labeled containers. Store all resilient flooring at minimum 70 degrees F for 48 hours before installing.

1.05 JOB CONDITIONS: Do not start flooring installation until satisfactory moisture testing results are obtained and the Work of all other trades is substantially completed, including painting. Keep the areas of installation and materials at minimum 70 degrees F during and for 10 days after installation is completed. Maintain adequate ventilation for the removal of moisture and fumes. Verify conditions as specified in Section 01400.

PART 2 - PRODUCTS

2.01 MATERIALS:

Vinyl composition tile:	Quality equal to or exceeding Fed Spec SS-T-312, Type IV, 12" by 12" by minimum 1/8", Mannington Commercial, materials and patterns as scheduled on drawings or as selected by Architect .
Sheet Vinyl:	Quality equal to "Premium" line of Armstrong World Industries, (Self-Coving) with inorganic Hydrocord backing, 0.090" gage with 0.050" wear layer, colors and patterns scheduled on drawings or as selected by Architect.
Rubber base:	Coved top-set 4" and 6" high as indicated on drawings using colors as scheduled on drawings or as selected by Architect, non-shrinking, 1/8" thick, with matching molded inside and outside corners and end stops.
Setting materials:	Adhesives, primers, and fillers of type and composition recommended by materials manufacturers, cut-back or equal types not containing water, factory labeled as to substrates on which application is approved by the manufacturer.
Reducer strips:	Extruded aluminum, edge-butting (not lapping) type.

PART 3 - EXECUTION

3.01 INSTALLATION: Conform to flooring manufacturer's recommended moisture testing and installation procedures and to requirements herein.

A. **Preparation**: Clean substrates of all deleterious substances and foreign matter. Fill cracks or depressions with latex leveling compound of the type recommended

by flooring manufacturer for specific job conditions. Prior to laying flooring, test concrete for adequate dryness using the testing procedure conforming to flooring manufacturer's directions. Prime concrete floor slabs on grade; prime other slabs if so recommended by flooring manufacturer.

B. **Vinyl Composition Tile Installation**: Mix sufficient quantity of tiles to complete each area before laying to avoid color variations. Install flooring with tight joints, pattern direction as approved. Lay flooring square with axis of rooms, starting on center lines with tile joint or tile center so that border tiles are not less than 4" wide, accurately aligned. Install reducer strips at exposed edges of flooring and where shown. Cut flooring mechanically to produce square true edges. Closely trim to pipes, jambs, outlets, and like conditions. Extend flooring into cabinets and casework without bottoms.

C. **Sheet Vinyl (Self-Coving) Flooring**: Fully bed in waterproof latex adhesive, all seams lapped and out in a manner that produces tight joints and preserves flooring pattern. Heat weld all seams and joints according to manufacturer's directions, free of gaps. Closely trim to pipes, jambs, outlets, and like conditions.

D. **Base Installation**: Securely cement to backing in long lengths, minimum 18" long filler pieces, top and toe continuously contacting wall and floor, all joints tight. Provide factory-made internal and external corners, and end stops where cove base ends at jambs and offsets.

3.02 CLEANING, WAXING, AND COMPLETION: Keep all flooring and base surfaces clean as installation progresses. Clean flooring and base when sufficiently seated and remove foreign substances. Immediately prior to Owner's acceptance of building, apply wax on resilient tile flooring in accordance with manufacturer's instructions. Clean adjacent surfaces of adhesive or other defacement. Replace all damaged or defective Work to the original specified condition.

END OF SECTION

SECTION 09682

CARPET

PART 1 - GENERAL

1.01 DESCRIPTION: Division 1 applies to this Section. Provide carpeting complete as indicated, specified, and required.

1.02 QUALITY ASSURANCE:

A. **Qualifications of Installing Mechanics**: Employ skilled journeymen carpetlayer mechanics.

B. **Requirements of Regulatory Agencies**: Carpeting shall meet the requirements of Federal, State and Local Regulatory Agencies for flammability, static control, or other properties as required and as specified herein. The carpet, pad and method of installation shall conform to CBC Section 1124B.3 with the pile height conforming to CBC Section 1124.3 and carpet edges conforming to CBC Section1124B.2

1.03 SUBMITTALS: Refer to Section 01300 for procedures.

A. **Layout Shop Drawings**: Submit showing dimensioned layout of all seams, location of dye lot changes, and details for binder bars. Approval does not relieve the Contractor of responsibility for the satisfactory installation of carpet.

B. **Samples**:

1. Master Samples: Submit three labeled minimum carpet Samples from each dye lot of carpet required for the Work. Samples shall demonstrate that dye lots acceptably match and there will be no apparent color change between carpet pieces of different dye lots.

C. **Sample Installations**: Prepare as many Sample installations as are required for approval. Use preparation techniques, installation materials conforming to approved submittals, and installation methods proposed for the Work. Architect will closely examine installations for workmanship, appearance, alignment and preservation of carpet pattern, non-detectability of seams when viewed from any direction or distance at the height of a standing or sitting person, and freedom from manufacturing or installation defects of any kind. Finally approved Sample installations establish the quality required for all carpet installations, shall be identified and recorded, and shall remain in place. Sample installations are required for:

1. All carpet in one areas designated by Architect.

D. **Product Data**: Submit the following:

1. Carpet manufacturer's published technical data fully describing all carpet materials, construction, and recommended installation directions.
2. Technical data and usage instructions for each adhesive and sealer material.
3. Carpet manufacturer's published instructions for maintenance care, cleaning, and repair of carpet (5 copies).

E. **Certificate**: Submit a certificate from the carpet manufacturer that materials supplied comply with fire hazard resistance standards specified.

F. **Maintenance Materials**: Owner will select the amount of carpet to be retained for maintenance purposes.

1.04 PRODUCT DELIVERY, STORAGE, AND HANDLING: Deliver materials in original unbroken packages, containers, or bundles bearing name of manufacturer, complete material identification, brand, and grade. Store in dry ventilated locations. Handle by methods that prevent damage, soiling, and contamination. On delivery of carpet material, bale ticket on each roll shall be recorded by Contractor and delivered to Owner.

1.05 JOB CONDITIONS:

A. **Ventilation and Temperature**: Verify that areas to be carpeted are ventilated to remove fumes from installation materials, and areas are within temperature range recommended by the various material manufacturers for installation conditions.

B. **Protection**: Keep traffic and personnel off carpet until at least 12 hours after installation. Cover carpet with heavy non-staining kraft paper or equivalent in areas where Work of other trades is to be performed and passage areas. Protect carpet from damage or soiling. Keep protection in place until ready for final clean-up operations.

1.06 WARRANTY: Refer to Section 01740. Furnish a written warranty to Owner for one year covering defects in materials or workmanship. Include trimming, relaying, or replacement as necessary, at no cost to Owner. Warranty must be issued by Carpet Manufacturer.

PART 2 - PRODUCTS

2.01 SUBSTITUTIONS: Refer to Section 01600. If required by the Owner or Architect, proposed substitute carpet shall be subjected to analysis at the Contractor's expense by a recognized testing laboratory, such as the Pittsburg Testing Lab, to determine the quality of proposed materials. Request for substitution shall be accompanied by a list stating the characteristics which differ from those of carpet specified with supporting data to justify the differences.

2.02 CARPET MATERIALS:

A. **Identification and Labeling**: Carpet shall bear a positive identification by a label service showing the carpet fire hazard classification as determined by a nationally recognized testing laboratory such as UL.

B. **Test Standards**: Carpet shall pass following tests and be so labeled:

1. Department of Commerce FF-1-70 Methanamine Pill Test or Radiant Panel Test (FRP), Critical Radiant Flux (CRF) of 0.507 watts per sq. cm.
2. Flame and smoke spread, Class I Rating.
3. Average corrected smoke density of 450 or less as determined by NBS Smoke Density Chamber Test.
4. Yarn weight per carpets as scheduled between 32 and 40 oz.
3. Pile thickness per carpets as scheduled.
4. Tuft gauge per carpets as scheduled.
5. Pile density (UM 44 D) 5735
6. Backing structure per carpets as scheduled either “Lifespan” by Atlas and backing structure by designweave.
7. Face Yarn: Antron Legacy Nylon.
8. Lifetime Warranty against edge ravel, delamination or tuff bind.

C. **Carpet Width**: Provide carpet(s) in width as scheduled on drawings.

D. **Carpet**: Provide carpet in color(s) and patterns as scheduled on drawings location by location.

E. **Carpet Primer and Adhesive**: Provide primer barrier coating and pressure sensitive adhesive, install in accordance with manufacturers specifications and recommendations.

2.03 RELATED MATERIALS: Use following products unless other materials are specifically recommended and named in carpet manufacturer's technical data.

A. **Leveling Compound**: Latex type compound, Merkote Products "Mer-Ko Underlay L" or Crossfield Products "Dex-O-Tex G-26 Underlayment". Verify that the compound is compatible with floor adhesive.

B. **Binder Bars**: Aluminum or other material as scheduled on drawing stackless binder edging by B&T Metals, Roberts Company, or Trimedge.

PART 3 - EXECUTION

3.01 INSPECTION: Verify conditions as specified in Section 01400. The Contractor, carpet supplier, and carpet installer shall inspect concrete floor slabs prior to start of carpet

installation and shall report to Architect, in writing, all conditions which will adversely affect installation of carpeting. Do not begin carpet installation until all reported conditions are corrected.

3.02 PREPARATION: Do not start preparation until concrete floor slabs are at least 90 days old. Conform to the recommendations of Carpet Manufacturers. Contractor shall obtain written instructions as to each type of application and/or installation prior to starting of the Work.

A. **Cleaning and Drying**: Clean slabs of oil, grease, waxes, curing compound, dust, dirt, debris, paint, and other deleterious substances. Verify that concrete is dry and vapor emission levels should not exceed three pounds as determined by the proper application of the calcium chloride test, if higher than 3 pounds, STOP INSTALLATION, number of tests as needed to ensure that slabs are dry but at least one test per floor and for every 2500 square feet of floor area. Allow slabs showing excessive moisture to dry and re-test until dried to tolerance allowed by floor adhesive manufacturer. Use a commercial vacuum cleaner to remove dust and dirt. Damp mop to remove dust that may remain after first vacuuming, allow surface to dry, and again vacuum; repeat the procedure if necessary to eliminate all dust. Do not use oiled or chemical treated sawdust or any similar product for dust removal.

B. **Leveling**: All floor slabs shall be true to level and plane within a tolerance of 1/8" in 10-feet. Test floor areas both ways with a 10-foot straightedge and repair high and low areas exceeding allowable tolerance. Remove high areas by power sanding, stone rubbing or grinding, chipping off and filling with leveling compound, or equivalent method. Fill low areas with leveling compound. Repair and level the surfaces having abrupt changes in plane, such as trowel marks or ridges, whether or not within the allowable tolerance. Again clean areas where repairs are performed.

3.03 CARPET INSTALLATION:

A. **General**: Install carpet in each dye lot in the number sequence furnished by manufacturer. carpet in one direction and do not reverse direction at any locations. Align carpet with centerline of room or space, and adjust at edges for wall variations.

B. **Color Control**: Plan dye lot change locations to eliminate shading problems and rejection. Use only one dye lot for each area of the building unless otherwise approved; if more than one dye lot is used, obtain prior approval of color match between dye lots.

C. **Laying and Seaming**: Follow highest quality professional installation procedures outlined by the National Association of Floor Covering Installers and the carpet manufacturer's directions as to workmanship. Preserve uniform row alignment and spacing on both sides and across seams. Lay carpet with tuft or

loop rows in straight lines both ways, free of offsets, waviness, distortion, or misalignment. Trim carpet at walls, columns, and penetrations for a compressed fit.

D. **Doorways**: Extend carpet into doorways without piecing in and seam to carpet on other side of door under door centerline except where metal thresholds occurs; no small filler pieces of carpet will be permitted at doorways.

E. **Adhesive Installation**: Do not stretch carpet during installation. Use notched trowel directed by adhesive manufacturer. Evenly spread adhesive free of excess or thin areas. Place and roll carpet within "open time" of adhesive. Coat all seam edges with seam sealer (not floor adhesive) applied to bottom of face yarn and entire edge of backings, and produce tight compressed seams free of gaps, peaking, or ridging. Roll or broom carpet towards open seams free of gaps, peaking, or ridging. Roll or broom carpet towards open seams or edges to expel trapped air and obtain full embedding in adhesive.

F. **Binder Bars**: Provide bars where required to secure precisely any tightly mitered angles.

3.04 CLEAN-UP: As each area is completed, clean up all dirt and debris, remove spots and soiling with proper cleaner, trim off loose threads with sharp scissors, and vacuum entire area clean.

3.05 INSTRUCTION: After installations are complete, carpet manufacturer's technical representative shall instruct Owner's personnel in maintenance of the installed carpeting tile. Give the instruction at time and location designated by Owner.

3.06 COMPLETED INSTALLATIONS: Clean and free of loose areas, defective or apparent seams, scallops, puckers, ripples, distortion, or other defects, and matching the quality of the approved Sample installation. All carpet installations not complying with these requirements, as determined by Architect, will be rejected. Contractor shall remove rejected carpeting tile and install new conforming carpeting at no extra cost to Owner.

END OF SECTION

SECTION 09900

PAINTING

PART 1 - GENERAL

1.01 DESCRIPTION: Division 1 applies to this Section. Provide and perform painting, complete.

A. Work In This Section: Principal items include:

1. Submittals.
2. Preparation of surfaces.
3. Painting of interior surfaces, except as otherwise specified.

B. Related Work Not In This Section:

1. Shop prime coats and factory finishes.
2. Painting specified as Work of other Sections.
3. Calking and sealants.
4. Miscellaneous work.

C. Surfaces Not To Be Painted:

1. Non-ferrous metal work (other than zinc-coated surfaces) and plated metal, unless particular items are specified to be painted.
2. Integrally colored concrete block.
3. Exterior concrete walls and surfaces.
4. Surfaces concealed in walls and above solid ceilings.
5. Non-metallic walking surfaces unless specifically shown or specified to be painted.
6. Factory finished surfaces.
7. Ceramic tile and plastic surfaces.
8. Resilient flooring and base.
9. Surfaces indicated not to be painted.
10. Surfaces specified to be finish painted under other Sections.

1.02 SUBMITTALS: Refer to Section 01300 for procedures.

A. List of Paint Materials: Prior to submittal of Samples, submit a complete list of proposed paint materials, identifying each material by manufacturer's name, product name and number, including primers, thinners, and coloring agents, together with manufacturers' catalog data fully describing each material as to contents, recommended usage, and preparation and application methods and all manufacturers warranties. Identify surfaces to receive various paint materials. All paints submitted must meet or exceed current State Of California health and environmental standards. All products submitted shall be free of ethylene glycol. Do not deviate from approved list.

B. **Color Samples**: Prior to preparing Samples, obtain Owner's color and gloss selections and instructions. Using materials from approved list prepare and submit 8-1/2" by 11" Samples of each complete opaque paint finish, making sure that all samples meet the gloss percentage criteria set forth in the finish schedule.

C. **Natural or Stain Finish Samples**: Prepare Samples on 12" squares of the same species and appearance of wood as used in the Work.

1.03 JOB CONDITIONS:

A. **Protection**: Protect all painting while in progress and cover and protect adjoining surfaces and property of others from damage. Exercise care to prevent paint from contacting surfaces not to be painted. During painting of exterior work, cover windows, doors, concrete, and other surfaces not to be painted.

B. **Examination of Surfaces**: Examine surfaces to be painted or finished under this Section and verify satisfactory condition; as specified in Section 01400, notify General Contractor and/or Owner and/or Architect in writing of unsatisfactory surfaces. Application of first coat of any finishing system constitutes acceptance of the surface by Painting Subcontractor. This does not relieve the Sub-Contractor from proper preparation of surfaces.

C. **Weather Conditions**: Apply paint to clean, dry, prepared surfaces. Do not apply exterior paint during rainy, damp, foggy, or excessively hot and/or windy weather. Arrange for temporary heat and ventilation required for interior painting.

D. **Precaution**: Place oily rags and waste in self-closing metal containers, removed from site at the end of each day. Do not let rags and waste accumulate.

PART 2 - PRODUCTS

2.01 MATERIALS: Use the paint products of only one paint manufacturer unless otherwise specified or approved. In any case, primers, intermediate, and finish coats in each painting system must be products of same manufacturer, including thinners and coloring agents, except materials furnished with prime coat by other trades. To the maximum extent feasible, factory mix each paint material to correct color, gloss, and consistency for application. Dunn-Edwards Paint Company products specified designate intended types and qualities. Furnish paints from one of the following manufacturers; refer to Section 01600 regarding substitutions:

Frazee	ICI - Sinclair
Tnemec	Sherwin Williams

PART 3 - EXECUTION

3.01 WORKMANSHIP: Apply painting materials in accordance with manufacturer's instructions by brush or roller; spray painting is not allowed without specific approval in each case. Apply each coat at the proper consistency, free of brush or roller marks, sags, runs, or other evidence of poor workmanship. Do not lap paint on glass, hardware, and other surfaces not to be painted; apply masking as required. Sand between enamel coats.

3.02 PREPARATION: Properly prepare surfaces to receive finishes.

A. **Clean all masonry** surfaces to be refinished of all dirt, dust, oil, grease, oxidized loose and scaly paint film, mildew, rust on metal and other foreign substances by a combination of the following methods to provide a clean sound surface prior to painting application:

1. Existing masonry shall be clean by scraping and use “Armex” Sodium Bicarbonate based blast media or comparable products and systems. System or approved equal.

B. **Repair all cracks**, holes and voids in surfaces to be refinished with appropriate sealants and repair compounds to insure permanency to the surfaces and compatible to the painting systems to follow. "Float-Off" and texture the patching materials, to match the adjacent surfaces. Allow repair compounds to fully dry prior to painting application.

C. **Concrete**: Fill cracks, holes, and other blemishes with portland cement patching plaster or a stiff paste mixed of finish paint and fine sand, finished to match adjoining surface. Remove glaze by sanding, wire brushing, or light brush-off sandblasting. Neutralize alkali conditions according to paint manufacturer's directions. Dry the surfaces to receive breathing type latex paints at least two weeks, free of visible moisture. Dry the surfaces to receive oil, alkyd, or epoxy based paint until moisture content does not exceed 8% when tested with an electronic moisture-measuring instrument.

D. **Masonry**: Repair minor holes and cracks with a stiff paste of finish paint and fine sand or vinyl type block filler. Report major or unsightly defects to the Architect for correction. Neutralize all alkali and efflorescence according to paint manufacturer's directions.

E. **Gypsum Wallboard**: Touch-up minor defects with spackle, sanded smooth and flush. Report other defects as specified.

F. **Shop Coated Metal**: Degrease and clean of foreign matter. Clean and spot paint field connections, welds, soldered joints, burned, or abraded portions with same material used in shop coats. After complete hardening, sand entire surfaces for coat to follow.

G. **Uncoated Ferrous Metal**: Degrease and clean of dirt, rust, mill scale, and other foreign matter using rotary brushes, solvent, or sandblasting. Remove pits and welding slag, and clean surfaces to bright metal before priming. Apply metal primer not more than three hours after preparation.

H. **Galvanized and Non Ferrous Metal**: Degrease and clean of foreign matter. Apply specified pretreatment, and immediately apply primer paint.

I. **Enameled Woodwork**: Sand smooth with grain and dust clean. After priming, putty all nail holes, cracks, or other defects with putty matching color of finish paint. Cover knots and sappy areas with shellac or approved knot sealer. Sand each base coat smooth when dry. Back prime exposed exterior wood or wood type products.

J. **Transparent Finished Woodwork**: Sand smooth with the grain and dust clean. Repair all defects with filler tinted to match stain or wood color, as required, after first coat of sanding sealer and remove all smears.

K. **Fixtures, Equipment, and Hardware Items**: Cooperate with other trades and coordinate removal of fixtures, equipment, and hardware as required to perform painting. Items to be removed include, without limitation: signs and graphics; switch and receptacle plates; escutcheons and like plates; all surface-mounted equipment; free-standing equipment blocking access; grilles and louvers at ducts opening into finished spaces; and other items as required and directed.

L. **Reveals**: In gypsum board, plaster and other surfaces reveals are to be painted to match adjacent color and finish, unless otherwise indicated or selected by the Owner. Obtain approval of the Architect prior to commencing work.

M. **Back Priming**: Refer to Section 06200 for requirements. Unexposed backside of all exterior siding, wood trim or other wood products shall be back primed and/or finished per manufacturer’s recommendations.

N. **Surfaces Not Mentioned**: Prepare surfaces according to recommendations of the paint manufacturer's and as approved.

3.03 COATS AND COLORS: The number of paint coats specified to be applied are minimum. Ensure acceptable paint finishes or uniform color, free from cloudy or mottled areas and evident thinness on arises. "Spot" or undercoat surfaces as necessary to produce such results. Tint each coat a slightly different shade of finish color to permit identification. Conform to approved Samples. Obtain approval of each coat before applying next coat; otherwise apply an additional coat over entire surface involved at no additional cost to Owner.

3.04 INTERIOR PAINTING: Provide finishes as scheduled on Drawings or directed, gloss of finishes as scheduled or, where not scheduled, as designated by the Architect. Enamel for finish shall be of the following glosses:

Gloss Enamel (70 – 89%)	W7600V, SPARTAGLOSS
Semi-Gloss Enamel (41 – 69%)	W603, ECOSHIELD Low Odor, Zero VOC, Or W7500V, SPARTAGLO, Interior / ExteriorModified Copolymer Semi-Gloss Paint
Eggshell Enamel (26 – 40%)	W7400 SPARTASHELL, Interior / Exterior Modified Copolymer Eggshell Paint
	Low Sheen (10 – 25%) W602, ECOSHIELD, Low Odor, Zero VOC
Or	W7300 SPARTASHEEN, Interior / Exterior Modified Copolymer Low Sheen Paint

A. Flat - Drywall:

1st Coat:	W 420V, WALLTONE, Interior Latex Flat Wall Finish
2nd Coat:	W 420V, WALLTONE, Interior Latex Flat Wall Finish

B. Flat - Concrete Block Masonry:

1st Coat:	SBPR00,SmoothBLOCFIL Premium
2nd Coat:	W 420V, WALLTONE, Interior Latex Flat Wall Finish

C. Enamel - Concrete Block:

1st Coat:	SBPR00,SmoothBLOCFIL Premium
2nd Coat:	Enamel, gloss as scheduled or designated
3rd Coat:	Enamel, gloss as scheduled or designated

D. Enamel - Drywall:

1st Coat	W 102, PROSEAL, Pigmented Interior Sealer
2nd Coat:	Enamel, gloss as scheduled or designated)
3rd Coat:	Enamel, gloss as scheduled or designated

E. Enamel - Wood:

1st Coat:	IKPR00, INTER-KOTE Premium, Int. Modified Copolymer Enamel Under-coater
2nd Coat:	Enamel, gloss as scheduled or designated)
3rd Coat:	Enamel, gloss as scheduled or designated

F. Flat - Metal: Treat galvanized metal with SC-ME-01 Metal Clean n' Etch

1st Coat:	GAPR00, GALV-ALUM Premium, Primer for galvanized metal
OR	BRPR00, BLOC-RUST Premium, Anti-Corrosive Metal Primer for ferrous metal

2nd Coat:	W 420V, WALLTONE, Interior Latex Flat Wall Finish
3rd Coat:	W 420V, WALLTONE, Interior Latex Flat Wall Finish

G. Enamel - Metal: Treat galvanized metal with SC-ME-01 Metal Clean n' Etch

1st Coat:	GAPR00, GALV-ALUM Premium, Primer for galvanized metal
OR	BRPR00, BLOC-RUST Premium, Anti-Corrosive Metal Primer for ferrous metal
2nd Coat:	Enamel, gloss as scheduled or designated
3rd Coat:	Enamel, gloss as scheduled or designated

3.06 MISCELLANEOUS PAINTING:

A. Weatherstripping or Sound Seals: Paint exposed metal surfaces to match the door frame, whether or not unfinished, furnished with factory prime coat, or factory treated for paint adhesion.

B. Miscellaneous: For any items not specifically shown or specified that require a paint finish, Contractor shall confer with Owner to determine if any additional painting is required, apply 3 coats of paint as directed.

3.07 CLEANING AND TOUCH-UP WORK: Make a detailed inspection of paint finishes after all painting is completed, remove spatterings of paint from adjoining surfaces, and make good all damage that may be caused by such cleaning operations. Carefully touch-up all abraded, stained, or otherwise disfigured painting, as approved, and leave entire painting in first-class condition.

END OF SECTION

SECTION 09955

FIBERGLASS REINFORCED POLYESTER PANELS

PART 1 - GENERAL

1.01 DESCRIPTION: Division 1 applies to this Section. Provide fiberglass reinforced polyester panels (FRP) complete as indicated, specified and required.

A. Work In This Section: Principal items include:

1. Fiberglass reinforced plastic (FRP) wall panels.
2. Related trim, fasteners, adhesive and accessories.

B. Related Work Not In This Section:

1. Gypsum wallboard.
2. Calking and sealants.
3. Resilient base.

1.02 QUALITY ASSURANCE:

A. Requirements Regulatory Agencies: Comply with applicable codes and ordinances, regulations, references and standards in effect at bid date.

1. A.B.P.A. Product Standards PS 58-73 and PS 59-73.
2. A.H.A. Industry Standard 1-71 (Class I Finish).
3. Federal Specifications LLL-B-805, LLL-B-8106 and LLL-810-B.
4. Underwriters' Laboratories, Inc.
5. Comply with CBC code for Flame Spread Rating, ASTM E84, Flame Spread 175, Smoke Density under 450.
6. Physical Properties:

Property	Test Method	Test Value
Flexural Strength	ASTM D790	19,000 psi
Flexural Modulus	ASTM D790	100,000 psi
Tensile Strength	ASTM D638	7,300 psi
Tensile Modulus	ASTM D638	118,000 psi
Impact Strength	ASTM D256	12.5 ft. lbs/in. notched
Barcol Hardness	ASTM D2583	58
Specific Gravity	ASTM D792	1.8
Thermal Coefficient of Linear Expansion	ASTM D696	1.6×10^{6} in./in./degree F
Water Absorption	ASTM D570	0.2% in 24 hours at 77 degrees F

B. **Qualifications of Installers**: For this portion of the work, use only installers who are trained in the installation of prefinished hardboard paneling, accessories and trim.

1.03 SUBMITTALS:

A. **Samples**: Submit to Architect for approval 12" x 12" sample of FRP board and 12" length of trim cap. Submit in accordance with Section 01300 Submittals.

1.04 PRODUCT HANDLING: Deliver product to job site with all finish surfaces protected against scratches, stains and all damage. Lay panels and trim flat in original containers raised off floor away from moisture.

PART 2 - PRODUCTS

2.01 FIBERGLASS REINFORCED POLYESTER (F.R.P.) PANELS: Panels shall be 4' x 8' x 3/32" fiberglass reinforced polyester panels. The panels shall be smooth and white in color. FRP panels shall be installed with 8' with harmonizing moldings, adhesive and sealant as supplied by the Commercial Division, Masonite Corporation, Dover, Ohio. Material must be applied strictly in accordance with the printed installation instructions provided. Approved alternate manufacturers' are Kemlite Corporation or Nudo Products, Inc or Sequentia Inc.

PART 3 - EXECUTION

3.01 INSTALLATION: Install per manufacturer's instructions, including sealant in moldings. Prepare all surfaces for proper installation against clean un-textured smooth sanded taped gypsum board. Room temperature during installation must by 60 degrees or above. Place FRP board before vinyl base is installed. Panels shall be flush, level and plumb. All trim and joints shall be level, plumb and true. Use large 4 x 8 panels so as to create no seams in small rooms (10'-0" dimension or less). In larger rooms, coordinate panel seams with Architect. Joints, install paneling with all joint and score lines plumb and in accurate alignment. No horizontal joints will be permitted. Sealant application, apply sealant at edges of panel and paneling and plumbing trim and as recommended by FRP panel and paneling manufacturer for sanitary installation, refer to Section 07900 Calking and Sealants.

3.02 CLEAN-UP: Clean panels and trims for final acceptance with products as recommended by manufacturer. Protect from damage until construction is complete. Remove all scrap, debris and packaging from site.

END OF SECTION

SECTION 10010

BUILDING SPECIALTIES

PART 1 - GENERAL

1.01 DESCRIPTION: Division 1 applies to this Section. Provide building specialties complete as indicated, specified, and required.

A. Work In This Section: Principal items include:

1. Signs.

B. Related Work Not In This Section:

1. Toilet accessories.
2. Concrete substrates.
3. Metal fabrications.
4. Finish carpentry

1.02 SUBMITTALS: Refer to Section 01300 for procedures.

A. Shop Drawings and Samples: Submit for various items as specified hereinafter. Shop materials, finish, characteristics, construction and fabrication details and procedure, layout and erection diagrams, methods of anchorage to building construction, templates for backing or anchorage, and other criteria.

B. Product Data: Submit catalog data for the standard manufactured items and as applicable to shop-fabricated or shop-assembled items.

PART 2 - PRODUCTS

2.01 MANUFACTURE: Refer to Drawings for selections and other recommendations. Use products of only one manufacture throughout for each specialty item specified unless otherwise noted or approved.

2.02 SIGNS: Fabricate and provide signs as detailed on drawings or as selected by Owner. Provide Shop Drawings for Architects approval prior to fabrication. Contracted Grade 2 Braille shall be used whenever Braille symbols are specifically required. Dots shall be spaced 1/10” on center within each cell with 2/10” space between cells. Dots shall be raised 1/40” above background. Refer to CBC Section 1117B.5.6. All signage shall conform to CBC Section 1117B.5 and 1103.2.4.

PART 3 - EXECUTION

3.01 INSTALLATION: Conform to the approved submittals and the various manufacturers instructions.

END OF SECTION

SECTION 10162

METAL TOILET PARTITIONS

PART 1 - GENERAL

1.01 DESCRIPTION: Division 1 applies to this Section. Provide painted metal toilet partitions as indicated, specified, and required.

A. Work In This Section: Principal items include:

1. Floor mounted overhead-braced toilet partitions.

B. Related Work Not In This Section:

1. Toilet accessories.
2. Concealed backing or blocking in walls.

1.02 SUBMITTALS: Refer to Section 01300 for procedures.

A. Shop Drawings: Submit Shop Drawings showing dimensioned layouts, the required location of backing in walls, preparation and reinforcing of panels to receive various toilet accessories and grab bars, and erection diagrams.

B. Product Data: Submit catalog data for each hardware item and fitting.

C. Samples: Submit Samples of metal finishes in designated colors.

D. Certificate: Submit manufacturer's certificate attesting that steel, treatment, and finish provided conform to requirements specified.

PART 2 - PRODUCTS

2.01 TOILET PARTITIONS: Floor mounted flush panel painted steel type, of color(s) as scheduled on drawings or as selected by Architect, or approved equal:

The Mills Co. Series as scheduled.

A. Construction: As standard with manufacturer, modified as necessary to suit the installation requirements, using galvanized bonderized steel of minimum 22 gage for doors, 20 gage for partitions, and 18 gage for pilasters, with galvanized steel adjustable connector to secure the pilasters to supports and one-piece polished stainless steel shoes with concealed clips at floor. Make reinforced cutouts in the partitions where required for the toilet accessories. Provide concealed reinforcements for grab bar connections to panels, designed for at least 300 pound shear load. Provide manufacturer's standard tubular extruded anodized aluminum overhead bracing.

B. **Hardware**: Of brushed stainless steel with the partition manufacturer. Equip doors with concealed adjustable hinges, coat hook and bumper, latch bolt, and combination stop and keeper. Assemble compartments with continuous wall metal brackets matching hardware. Use theft-proof fasteners of matching materials. Provide U-shaped or loop type hardware at each side of door, and flip-over or sliding latch per CBC 1115B.7.1 (4) accessible stalls. Toilet stalls for disabled persons shall have slide bolt door latch, wire pulls both sides of the door and self closing hinges. Door hardware shall be mounted at 30" to 44" above finished floor. Disabled doors at front entry stalls shall have 32", and side entry stalls shall have 34" minimum clear width when the door is open 90 degrees. Coat hook shall be installed at 48" maximum.

C. **Finish**: Factory-applied oven-baked inhibiting primer and baked enamel paint coats on exposed zinc-coated surfaces, minimum total dry mil thickness of 1.5 mils.

PART 3 - EXECUTION

3.01 INSTALLATION: Form and assemble work plumb, square, and in true plane without warp or wind, connections made tight and secure. Remove punctured or scratched material and provide conforming material. Leave the entire installation clean and free of oil, grease, handmarks, or other foreign matter, and with hardware adjusted for correct operation.

END OF SECTION

SECTION 10800

TOILET ACCESSORIES

PART 1 - GENERAL

1.01 DESCRIPTION: Division 1 applies to this Section. Provide accessories for toilet rooms complete as indicated, specified, and required.

1.02 SUBMITTALS:

A. **Product Data**: Submit the manufacturer's technical Product Data and installation directions.

B. **Samples**: Submit such Samples as Architect may request, which will be returned to Contractor. Approved Samples may be installed in the Work.

PART 2 - PRODUCTS

2.01 MATERIALS: Accessories as scheduled on Drawings, brushed stainless steel products of Bobrick or Bradley. Refer to Section 01600 regarding substitutions.

2.02 TOILET ROOM MIRRORS: Provide Bobrick Series as scheduled on drawings, install where indicated on drawings. Mirror quality 1/4" thick polished plate, ground edges, double-silvered, copper backed, and organic coating, bearing 15-year guarantee against silver spoilage. Provide stainless steel channels as scheduled on drawings and secure with adhesive supplied by mirror manufacturer.

PART 3 - EXECUTION

3.01 INSTALLATION: Install accessories square, plumb, and level. Securely anchor by mechanical means only using stainless steel fasteners. Obtain required rough-in and installation templates. Exact locations shall be as indicated or directed by the Architect.

END OF SECTION

SECTION 12510

MINI BLINDS

PART 1 - GENERAL

1.01 DESCRIPTION: Division 1 applies to this Section. Provide mini blinds, complete as indicated, specified or required

A. Work In This Section: Principal items include:

1. Submittals.
2. Horizontal mini-blinds complete with valances, hardware at typical windows

1.02 SUBMITTALS: Refer to Section 01300 for procedures.

A. Shop Drawings: Submit showing each typical blind installation.

B. Samples: Submit the full range of the manufacturer's standard colors for selection.

C. Product Data: Submit each manufacturer's catalog data.

PART 2 - PRODUCTS

2.01 MINI-BLINDS: Provide 1” mini-blinds as manufactured by Levelor or equal, equivalent to Levelor "Riviera" of narrow bottom rails, clear acrylic control wand, mounting hardware, pivot plate and hold down brackets (color to match blinds).

PART 3 - EXECUTION

3.01 INSTALLATION: Conform to blind manufacturer's instructions and approved submittals. Demonstrate that each blind operates correctly.

END OF SECTION

SECTION 15000

MECHANICAL

PART 1 - GENERAL

1.01 DESCRIPTION: Division 1 applies to this Section. Provide all mechanical, plumbing and HVAC systems complete as indicated on drawings, specified, and required.

A. Work In This Section: Principal items include:

1. Complete mechanical systems.
2. Complete plumbing systems
3. HVAC systems

B. Related Work Not In This Section:

1. Electrical connections.
2. Civil connections.

1.02 SUBMITTALS: Refer to Section 01300 for procedures. Submit complete Shop Drawings Section 01300, "Submittals".

PART 2 - PRODUCTS

2.01 MATERIALS: Provide materials and equipment required for completion of work as shown or required on the drawings.

2.02 ACCESSORIES: Provide all hardware, accessories, and miscellaneous items for a complete operational systems.

PART 3 - EXECUTION

3.01 INSTALLATION: All mechanical systems work shall be properly installed in strict compliance with drawings and all Code requirements.

END OF SECTION

SECTION 16000

ELECTRICAL

PART 1 - GENERAL

1.01 DESCRIPTION: Division 1 applies to this Section. Provide required electrical systems complete as indicated on drawings, specified, and required by Code.

A. Work In This Section: Principal items include:

1. Complete electrical systems.
2. Complete lighting systems.

B. Related Work Not In This Section:

1. Mechanical connections.

1.02 SUBMITTALS: Refer to Section 01300 for procedures. Submit complete Shop Drawings Section 01300, "Submittals".

1.03 QUALITY ASSURANCE: Conform to the following as applicable:

A. Certification Labels: Provide equipment which complies with standards and bears certification labels as follows:

1. Energy Ratings: Provide energy guide labels with energy cost analysis (annual operating costs) and energy information as required by Federal Trade Commission.
2. UL Standards: Provide equipment with UL labels.

B. Uniformity: Provide products of same manufacturer for each type of equipment required. The greatest extent possible, provide equipment by manufacturers that are scheduled on drawings for entire project.

1.04 PRODUCT DATA: Submit manufacturer's specifications and installation instructions for each type of equipment, including data indicating compliance and requirements. Submit operating and maintenance instructions for each item of equipment. Provide product cuts for Architect/Owners approval prior to purchasing any equipment.

1.05 PRODUCT WARRANTIES: Submit manufacturer's standard written warranty for each item of equipment.

1.06 FINISH/COLOR: Provide finish and color as selected by Architect/Owner or shown or scheduled, unless otherwise indicated.

1.07 DATA SHEETS: Submit manufacturer's published data sheet indicating rough opening sizes, basic space requirements, and all requirements to Architect/Owner.

1.08 PRODUCT DELIVERY, STORAGE, AND HANDLING: Deliver all equipment to the site in unopened factory sealed containers bearing printed name of manufacturer, keep container dry and undamaged.

PART 2 - PRODUCTS

2.01 MATERIALS: Provide materials and equipment required for completion of work as indicated on drawings and required by Code and approved by the Architect.

2.02 ACCESSORIES: Provide all hardware, accessories, and miscellaneous items for complete operational systems.

PART 3 - EXECUTION

3.01 INSTALLATION: All electrical systems work shall be properly installed in strict compliance with drawings and all Code requirements and approval by the Architect.

END OF SECTION